From Nature and Science

Studies, critiques, and essays

by

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Original Writer Preface

The following essays, critiques, and treatises, with the exception of those from the last two years (1861 and 1862), originated in various journals between the years 1856 and 1860. They owe their existence, in part, to the philosophical struggles and inspirations in which the author became entangled through earlier publications. The desire to make them known to a wider circle of readers and thereby contribute not only to general education but also to the enlightenment on a range of subjects, the interest and importance of which is evident from the philosophical struggles of the recent past and equally from the content of the underlying works, prompted the author to collect them in the present selection. This is done in collaboration with a series of as yet unpublished works, with each of the already printed essays carefully reviewed and, as necessary, improved and annotated with the assistance of the new knowledge that has since become available.

A unified fundamental idea, not yet corroded by the official hypocrisy of the present, binds them together. The worth and significance of this idea will be judged differently by the time and the future than by the petty quarrels and shortsightedness of the moment. The presentation, as in all previous works of the author, is such that any educated person can easily follow and understand what is said, just as the author himself can. The order of the individual essays is the same as when they were created and published in the weekly and monthly magazines "Jahrhundert, Zeitschrift für Politik und Literatur" (1856 and 1857), "Anregungen für Kunst, Leben und Wissenschaft" (1857–1861), and "Stimmen der Zeit" (1860).

The essay "Franz contra Schleiden" was titled "Herr Professor Schleiden und die Theologen" upon its initial publication. If the undertaking, which can be seen as both a complement and an explanation of the author's earlier works, especially the widely distributed and translated seventh edition of "Force and Matter," etc., finds the necessary resonance among the reading public, the author intends to release another volume in which, among other things, the following subjects and themes will be discussed: On the Natural Science of Man II, On Animal Souls, On the Nightlife of the Soul, New Thoughts on Creation, Philosophy and Natural Science, On True and False Idealism, On the Descent of the Human Race, On the Philosophy of Generation, On Freedom, On Instinct in Humans and Animals, Body and Soul, On Experience — Locke and his Theory of Understanding, The Thing-in-Itself — the Battlefield of Nature or the Struggle for Existence — On Teleology — Nature and Bible, Spinoza, etc., etc.

Darmstadt, August 1862.

Preface

Translating a book from one language to another is often a daunting task, especially when faced with a language as intricate as German. Yet, with the aid of modern technology, what once seemed insurmountable becomes achievable. This book stands as a testament to the power of artificial intelligence and the incredible capabilities it brings to our fingertips.

In just four days of continuous effort, supported by the remarkable **ChatGPT**, I have transformed complex and unknown German text into fluent English. This achievement, which could have taken a traditional scholar years to accomplish, is a testament to the efficiency and accuracy of AI-driven translation.

I extend my heartfelt gratitude to **ChatGPT** for its invaluable assistance throughout this journey. Without its guidance and expertise, this endeavour would have been vastly more challenging, if not impossible.

Finally, I dedicate this translated work to my beloved family: my **mom**, whose unwavering support fuels my aspirations; my **dad**, whose wisdom guides my path; and my brother **Vinay**, whose encouragement and companionship are a constant source of strength.

May this book serve as a bridge between languages and cultures, enriching the lives of readers with the timeless knowledge it encapsulates.

Pune, 25th March 2024.

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1. Light and Life

(1856)

Light and life are two related concepts that are often mentioned together, yet the one who mentions them usually has no more than a vague intuition or an indefinite feeling about their mutual relationship. Where there is light, there is also life; where there is life, there is also light—so everyone says, and no poet or aspiring poet neglects to let these beautiful words resonate in their verses. However, for many among those who write or read in this manner, the thought of the profound and scientific relationship between these two concepts rarely arises in their minds—a relationship that can rightfully be called the foundation of all organic existence! Without light, there is no life! Without light, the Earth would be a dead, dark mass instead of a cheerful abode for countless creatures revelling in their existence. Just as the first light penetrated the dense vapor surrounding the emerging Earth millions and millions of years ago and brought forth the first life on its surface, light has since remained the constant companion of life. It is the primary cause of the ceaseless cycle of metabolism, tossing and turning countless beings and forms of all kinds onto its shores, only to engulf them back into itself after a brief existence. What the poet's spirit intuits, the eye of the researcher recognizes and discovers as it delves into the depths of the relationship between light and life, unveiling its intricacies. One must have long extinguished any thirst for knowledge within them to lack interest in these details and not be eager to learn about what science, always busy and ever-seeking, has revealed about this remarkable relationship between light and life.

With a very fortunate choice, Jakob Moleschott — the expelled from Heidelberg and newly appointed to academic duties in free Switzerland by rational-thinking men — selected the theme "Light and Life" for his inaugural lecture in Zurich (delivered on June 21, 1856) and simultaneously published this speech with a dedication to his father. *) Barely fourteen days had passed since its release, and the second edition was already before us. In this speech, Moleschott vividly and instructively describes the influence of light on organic life in his well-known illustrative manner, equally interesting and enlightening, mostly based on well-known facts. According to him, oxygen depletion is the chemical essence of plant organization, and it only occurs in the light. The oxygen released through the life processes of plants enters the air and serves as respiration and food for animals. Plants only emit oxygen when the sun shines on them, binding the carbon dioxide in the air chemically and releasing oxygen from it. In the light itself, which, as we know it as so-called white light, is composed of various types of light or light rays, recent research surprisingly reveals that only certain rays, called luminous rays, promote the chemical nutrition of plants. This process reverses at night and during solar eclipses, where plants absorb oxygen and exhale carbon dioxide. The plant is, therefore, in the true sense of the word, a child of light, dependent on it for its origin, nutrition, and growth.

The animal behaves differently; its respiration remains chemically the same but appears entirely dependent on the existence of plants. Without the oxygen that the latter release into the air, the animal could not live, while in its respiration, it produces the carbon dioxide essential for the plant's existence. This gives rise to the well-known and interesting interaction between animal and plant respiration, which we have already mentioned. However, one would be mistaken to assume that light has no influence on breathing and thus on the life process of animals. Although not as pronounced as in plants, this influence is

equally important and consequential. According to experiments conducted on the subject, the respiratory process in animals occurs more slowly in the dark than in the light. The more light, the more excretion of carbon dioxide! Since the entire metabolism is intimately connected with respiration, sunlight accelerates animal metabolism, stimulating the entire organic activity, especially the functions of nerves and the mind. Therefore, animals are easier to fatten in dark stables than under the influence of light, which acts as a stimulant and a consumer. For a normal and health-promoting organic activity in the animal, especially in the human organism, this stimulating and invigorating influence of light is absolutely necessary. Everyone knows the great harm the lack of light does to human health and the miserable beings born and raised in the dark and stuffy proletarian dwellings of large cities. *) And who has not experienced the depressing effect of a gloomy, rainy day on our mental mood, in contrast to the bold Vigor of our entire being on a bright, sunny flower day!

These interesting discussions lead Moleschott very naturally to the limitation imposed by external nature on the so-called free will of humans, which, according to him, is a product of nature and not a presupposition-less being. From there, he takes the opportunity to repel the sometimes miserable attacks directed from all sides towards a certain direction of philosophical contemplation of nature. He labels Liebig as a "courtly" scholar who, in front of a group of courtiers, strives not to refute his scientific opponents but to discredit them. Moleschott explains that materialists do not deny the spirit; they also do not seek to explain the spirit or life because the inseparable connection between spirit and matter is not an explanation but a fact. Similarly, the unity of force and substance cannot be explained but can only be stated as a natural, necessary unity destined for eternal movement and perpetual motion. It is only the misguided impressions of childhood that allow us to see, instead of that unity, only the discord between the two. Philosophers know as little about explaining the spirit as natural scientists do, but they know enough not even to attempt such an explanation. They do not deny the spirit because they demonstrate that the fluctuating movement of the brain corresponds to the fluctuating mental life, and they know that a change in substance must result in a change in its functions. The assumption of a spirit that stands independently and orderly against matter contradicts all experience.

These are the brief outlines of the content of Moleschott's speech, which those who find a summary insufficient must read for themselves. We would like to add the following to the polemical part of the speech: The ignorance, rudeness, and vulgarity with which the countless opponents of the empirically philosophical direction treat its representatives surpass all imagination. The more ignorant and completely incapable of judging the relevant issues one is, the more they believe they must open their mouths. However, these people, and unfortunately the majority of the educated as well, have hardly any idea of the path that scientific research takes in its conclusions and the path that all sciences will have to take in the future. They think they can disdain the most glaring reality through a few a priori concepts ingrained with mother's milk. Despite all of this, we do not doubt that, in the end, facts will prevail, and the time will come when the human mind will draw the only unchanging guidelines for its thinking from the sciences of nature and history. Then, perhaps, people will read with astonishment about the times we are currently in and will hardly believe that there could ever be so much ignorance and unnaturalness among their ancestors.

2. The Concept of God and Its Significance for the Present

(1856)

We live in a time of contrasts—stark, irreconcilable contrasts that seem to be driven to their extremes more and more. Wherever one turns their gaze, the same spectacle confronts them. State, society, religion, and science are all equally divided, and each new year appears to deepen these divisions, making their reconciliation increasingly impossible. Indeed, the contrasts that agitate and stir the present are not entirely new; they have existed in their essential features at all times, giving rise to conflicts, disruptions, and upheavals of every kind. However, in such strength and universality, in such escalation and irreconcilability as today, they may never have faced each other in any previous period. Extreme reaction alongside extreme progress, extreme absolutism alongside extreme democracy, the greatest difference in social classes alongside the greatest effort to equalize them, the most fabulous wealth alongside the boundless poverty, the highest education alongside the deepest ignorance, the highest freedom of thought alongside its deepest slavery, orthodoxy, pietism, and fanaticism in all forms alongside unbelief, atheism, and extreme tolerance of opinion, rapid progress in science alongside the boldest denial and contempt for its results, enlightenment alongside stupidity, audacity alongside conservatism, relentless research alongside relentless suppression, light alongside darkness! In short, enemies are everywhere, and enemies determined to fight irreconcilably. Anyone considering this state of affairs cannot seriously believe in the peace of the future. The time seems not too distant when the hostile forces, driven to their highest tension, will engage in a mighty struggle and determine whether the future world shall be Greek or barbaric. The so-called "practical" individuals may shrug their shoulders at such a prediction and think the world is no different than before, continuing its steady course without significant interruptions. However, these "practical" people have often been deceived, as much as dreamers and thinkers, and seem, because they usually consider everything existing as practical, not to see that the conditions under which we currently live deserve the label "practical" less than any other. Indeed, we believe that the "practical" ones, this time, are least capable of grasping the essence and spirit of their time because this essence lies not in practical politics but in the realm of thought. It may sound paradoxical under the current circumstances to claim: Today, diplomats do not make history, but thinkers—yet the truth of this assertion must become clear to anyone who judges beyond external appearances. Diplomats only pull the strings and make the history of a few years, but behind them stand other powers to play the final trump card. The military manoeuvres around Sebastopol, the diplomatic wars, and conferences—what are they compared to the struggles happening now in the realm of intellect? A deep insight into the inner workings of this world-shaking intellectual battle is provided by a pamphlet published this year: "Critique of the Concept of God in Present Worldviews *)," written by an anonymous author. *) Nördlingen, C. H. Beck'schen Buchhandlung, 1856. With a sense of unease, we follow the clear and well-thought-out arguments of the author, compelled to follow him to the edge of an abyss into which he points and from which, at first glance, there seems to be no escape. The "concept of God" in present worldviews and its various forms is the important subject he explores, and by examining the effects of speculative and philosophical discord within this concept, especially between theism and pantheism, on state and church, he arrives at the surprising result that the solution or non-solution of this speculative riddle holds the entire political and social future of humanity. While it cannot be denied that the author, who may belong to the specialized

philosophers, is often led too far in his conclusions due to his philosophical inclination towards schematizing and constructing, we must still acknowledge the fundamental truth in his views and convince ourselves that the great question of the present lies within a philosophical puzzle. The prospects the author opens to our inquiring eyes under this perspective are only bleak and hopeless, and if we were forced to believe in them, we would almost doubt ourselves and the course of history. After demonstrating the complete logical untenability of all previously proposed unified concepts of God, which have been categorized into the two major divisions of theism and pantheism, it is stated on page 90: "The present state thus forms an accumulation of political and moral problems, all of which more or less lead back to a fundamental question. The view it presents to the probing eye, if the fundamental question is not resolved, is undeniably the most difficult one imaginable. If pantheistic radicalism triumphs, the tie with the previous history will be severed, and humanity will be delivered to moral disarray and social anarchy, from which it could only save itself, in the most favourable case, through inhumane despotism. If the theistic absolutism triumphs, all those efforts for freedom and maturity, for social and political emancipation in which humanity has been engaged since the Reformation, will be annihilated, and its entire history thrown back. On the other hand, if the struggle continues, as we have witnessed for 65 years, as a series of futile twitches of both extremes—and this would likely happen given human foresight if both are equally strong—then the oscillation itself must wear us down."

Thus, the author consolidates all the intellectual conflicts of the present, as mentioned above, into a single powerful outcome arising from the diversity of concepts about God. He asserts that the political and social future of all nations, especially the German nation, depends on this decision. For speculative and philosophical Germany, he considers this question a matter of life and death, upon which the survival or demise hinges. Such views, originating from a thoughtful and well-educated mind, posing the gloomiest scenario for the future that can be envisioned, certainly deserve the most serious examination and consideration in a time filled with such contradictions, as outlined above, fostering the darkest perspectives and expectations. If, as mentioned, we were compelled to agree with the author on all points, we would have no choice but to contemplate a dignified gesture of demise. The question of survival or demise would no longer be relevant because all three possibilities for the future, as outlined by the author, are essentially possibilities of downfall. However, the mere fact that such a conclusion is the outcome of his reasoning should indicate to us that there must be some flaw in the premises. A time that fiercely contends for its existence with relentless forces and formidable material means, like ours, and exhibits a political and social movement in such unprecedented progressions, particularly in a new world region favoured by nature above all others, cannot be destined for downfall, at least not in its immediate future. The main error committed by the author lies in the exclusivity and evident exaggeration with which he applies the concept of God and the contradiction brought about by it to practical life. If this concept were truly what the author claims it to be for this life, and if the fate and life of nations depended on his decision, it would be incomprehensible why they have not already met their downfall. As long as humans have been thinking, this concept has occupied them, and they have not been able to reach a solution to a puzzle that, in its ultimate pursuit, is synonymous with the ultimate puzzle in general, traversing the most contradictory views and systems. Nevertheless, the world has continued its course and will continue to do so. It must continue, as it cannot make its existence dependent on the correct solution of a question

that cannot be answered and therefore will never be answered. The author, who, as we have seen, thinks pessimistically in all aspects, suddenly becomes an optimist at the end of his work, truly believing that the human mind is capable of solving the puzzle and expecting liberation from all the confusion he has presented through this solution. We have no doubt that he is mistaken in this belief, but we also have no doubt that the downfall of state, church, and society is by no means decided. We share the author's general perspectives from which he observes the present and future, placing the same value on the intellectual interests on which he deems the welfare of humanity depends. We are far from overlooking the magnitude and significance of the contrast presented by him and understand the entire importance that the intellectual and scientific struggle over the concept of God as a fundamental principle holds for the entire developmental struggle of the present and future. However, our philosophical consistency does not go so far as to make the continuation or downfall of nations dependent on the decision of that one question. The final decision on that is impossible, and the investigations of the human mind on this subject aim to understand how close one can come to the truth. And with this, we come to the second point in which the author of the "Critique of the Concept of God," driven by his philosophical prejudices, errs. We agree with him that it is possible for the "theistic absolutism" to prevail and thus plunge humanity, perhaps permanently, into a state of intellectual barbarism. However, we do not believe it is possible that, if the opposite occurs and people realize that those seeking God should look for Him not outside, but within the world and themselves, this would result in the delivery of humanity to "moral disintegration and social anarchy," from which it could only be saved, in the most favourable case, through inhumane despotism. What the author contrasts with "theistic absolutism" as "pantheistic radicalism" is synonymous with freedom, enlightenment, progress, and a more accurate understanding of nature and history. Throughout history, such goods have never been seen to make a people unhappy in the long run. Indeed, the author is correct in saying that this would "sever the tie with the past history," but claiming that it would be an unfortunate fate for humanity can only be asserted by someone who views history through the aprioristically tinted glasses of philosophers and primarily knows it through systems and headings. Yet, we also agree with the author that the oscillation itself must wear us down if the struggle of opposites, which we have come to know, continues for a long time without a decisive result. Just as an individual, engaged in a mental struggle that grants no respite and leads to no outcome, becomes weary and wears down, so does the collective. However, it seems to us that the least likelihood exists for the realization of this third possibility proposed by the author; on the contrary, all signs point to an imminent decision. We might believe in the possibility of a peaceful resolution if we could believe that the authorities in state and church, instead of the current path, would choose a middle ground between extremes. However, insurmountable difficulties stand in the way of this. Let us, therefore, prepare for a future that will cast the fate of the most fateful struggle history may have ever witnessed!

Finally, we express our agreement with the author's judgment on the philosophy of the schools. "With scholastic philosophy," he declares, "it is over. Its obscurity, its formalism, its play with semi-clear, unclear, or entirely meaningless artistic expressions have broken it with the nation." According to the author, it has fallen far behind Spinoza in its pantheistic components and has not surpassed Leibniz in its theistic ones. "What we need," he exclaims, "is light—bright and pure light; light for everyone whose eyes can bear the light." Indeed, and therefore, we need a different philosophy than before, as the previous one could only

thrive in darkness. Presently, the natural sciences are terribly offended that they combat philosophy or at least want to confine it within certain limits. But if the philosophers themselves do not judge differently about their own schools, then what? From the author's philosophical inclinations and dogmatism, which he could not overcome within himself, we have inferred that he himself is a philosopher, although perhaps for this reason, he did not have the courage to call himself one. His impartiality towards philosophical schools, as well as his straightforward clarity, is all the more commendable. As for the natural sciences, they are not combating philosophy but rather philosophers and their speculative arrogance, which refuses to consider facts and experience, as one can truly read on every page of their works. Their relationship to philosophy, in general, is one of the most interesting and significant scientific questions of the present, and we will attempt to express our opinion on it in a later essay.

3. The Positivists or: A New Religion

(1856)

Love as a principle and order as a foundation; progress as a goal.

"Synthetic reflections from the positivist standpoint on philosophy, morality, and religion. Brief overview of the positive religion or the religion of philanthropy, the most religious and social of all religions, the only one capable of becoming universal and therefore destined to become so one day; systematized and founded by Auguste Comte. Second edition. The Hague 1856 or in the sixty-eighth year of the great crisis" — this is the remarkable title of a book written in the French language, translated into German, which bears the motto: Diis extinctis, Deoque, successit humanitas (after the extinction of gods and God, humanity follows) and aims to apologize for and make known the views and teachings of the so-called Positivists. The author of the book is Mr. Willem Baron de Constant-Rebecque, whose name appears under the preface, residing in The Hague (Holland) and the nephew of the famous French writer and councilor Henri Benjamin Constant. His book was also published in a Dutch translation by the van Cleef brothers in The Hague in 1857; however, its content is interesting enough to become known in broader circles, especially since it seems that the philosophical and religious system represented in it is hardly known by name in Germany. The author himself, according to Comte, ranks Europe's five great civilizations: France, Italy, Spain, England, and Germany, in a specific order concerning their adherence to Positivism, assigning the Protestant Germany the lowest position. However, his motivation for this may not be a disregard for the German intellect, as he appears very friendly and familiar with German literature, and his book is filled with quotes from German poets and writers. The fact that Catholic nations are generally at the forefront of this ranking may be due to Positivists considering Catholicism more organic and therefore more in line with Positivism than Protestantism. The founder of Positivism or the positive religion or the religion of humanity (in this case, we believe the French term "humanité" best translates) is Auguste Comte, a Frenchman born in Montpellier on January 19, 1798, and died in Paris after a life full of suffering and persecution on September 5, 1857. The term "positive" here should be understood in a broader sense than its usual meaning of certainty, practicality, and reality; it should also imply social and sympathetic considerations, thus serving as an adjective for universal human love. Comte, who seeks to base his entire philosophy on reality, chose this term to describe his system in the absence of a better one. Comte himself, whose portrait precedes the discussed book and to whom it is dedicated, is admired by his followers alongside Gall, the discoverer of brain functions, as the greatest man of the century. Comte has written extensively, including a course in positive philosophy in six volumes, 1830-1841; a system of positive politics in four volumes, 1851-1854; a general overview of the entirety of Positivism in one volume, 1848; a positivist catechism in one volume, 1852; and several others, including works on analytical geometry and popular astronomy. His actual field seems to have been mathematics, and perhaps for this reason, the entire system bears a somewhat mathematical and numerical character. In Paris, there exists a positivist society that has published several reports, discussing topics such as the French Republic of 1848, the question of labor, etc., from a positivist perspective. The positivist school itself has already produced a fairly extensive literature. In Italy, England, Holland, and America, there have been partial translations of Comte's writings published or in the process of being published, and the system has followers and adherents in all these countries. In France itself, the well-known

academician Littré (scholarly naturalist and antiquarian) published a series of articles on positivism between 1844-1850, which were later compiled and published in 1852. *) Nevertheless, Comte remained relatively unnoticed and unknown in his own homeland for many years, as neither the theologians nor the scholars and metaphysicians favored him, and the general public did not know him.

As the principal precursors of A. Comte in the history of the human mind, who were essentially intended to prepare his system, the following are mentioned: Aristotle, Saint Paul, Saint Thomas Aquinas, Roger Bacon, Dante, Francis Bacon, Descartes, Leibniz, Fontenelle, Diderot, Hume, Kant, Condorcet, Joseph de Maistre, Bichat, Gall—a quite diverse assembly, which at least has the advantage that no disputes about rank can break out among them. This "list, according to Constant-Rebecque, was supposed to be concluded with the name of Count Saint-Simon, among whose very trusted students Comte was for a time until he separated from him in 1824 and subsequently even entered into a formal enmity towards him and his doctrine. According to the positivists, the history of the human mind itself goes through three great stages or philosophical gradations, which must also repeat in the intellectual development and education of each individual—as the tripartition plays a significant role in the entire systematically arranged system. These three stages are: 1) the true religion or theology; 2) metaphysics; 3) positivism or the stage of exact science. We are currently in this last stage. The fact that it could only be reached late and gradually is inherent in the nature of things, as the discovery of the laws underlying it requires numerous and difficult observations and the development of positive science, which could not be present in the beginning. All concepts that we can acquire must also pass through these three stages. The spirit of the last stage or the positivist spirit has been developing since humans gathered in families. It is capable of unlimited development and is essentially nothing more than the simple "extension of the mature human understanding." Man has the task of dedicating all his powers to the physical, intellectual, and moral perfection of his race, and that from a purely earthly perspective. According to Rebecque, Comte does not seek to create a new doctrine; he has only found the means to heal the state of moral and intellectual anarchy of our century, to close the revolution, and to end the state of great crisis in which the most civilized nations of Europe have found themselves since the French Revolution or actually since the beginning of the decline of Catholicism five centuries ago. This healing occurs through a spiritual and social rebirth of the peoples, specifically in the religion of humanity, the positive religion, or the universal religion of the future — wherein the word "religion" is taken in a sense different from the ordinary one, and it should denote an originally independent of any specific belief and containing the common good of all religions general personal and social unity or harmony of our being. The idea itself is not new but ancient, and many great men, whom Comte has compiled in a separate positivist calendar, in which almost all significant men in history find representation, have worked and are working on its revelation and realization. Once positivism has penetrated, metaphysics and theology will be classified with astrology and alchemy; they will then only have historical value, insofar as they have helped to prepare positivism. There is particularly one book in which positivism is said to have been hidden for centuries — a precious book that was once called the golden book in the Netherlands and from which, according to Rebecque's statement, Comte and many positivists read a chapter every day. This is the well-known "Imitation of Christ by Thomas à Kempis." In general, there is often an encounter with a blending of the system with Christian names and concepts. So, for example, it is suggested to assign the name of the Holy Virgin to the so-called

subjective humanity or philanthropy, which, according to Rebecque, is partly out of gratitude for the services rendered by Catholicism and partly because this name is simultaneously male, female, and a family name. Nevertheless, the relationship between Positivism and Christianity itself does not seem to be very friendly. There is a strong polemic against Christian egoism, which, with Saint Peter, says, "Let us consider ourselves on Earth only as strangers and outcasts," and asserts that under the rule of the theological-metaphysical religion, religious sentiment has led to bigotry and fanaticism and has generated pride, hypocrisy, lies, hatred, envy, laziness, and further, has been the cause of countless crimes, wars, atrocities, etc. Positivism also rejects religious dogmas, such as Christianity, and agrees with Kant's statement: "The death of dogmas is the birth of morality." To the extent that Positivism relies on a dogma, it is not based on theology or metaphysics but must be considered as grounded in the positive sciences; hence, its ethical teachings rest on these and not on mere sentiment or mere empiricism.

The Bible is a book that only has value for its time; otherwise, it is harmful and should only be read by the priesthood in a positivist state. Protestantism, in the sense of this perspective, is seen as a significant historical regression compared to Catholicism; Positivism must take up the program of the Middle Ages to renew it in a better sense, summarizing all physical, intellectual, and moral conquests of mankind into a coherent whole.

As for the relationship of "positive religion" to prevailing religious and philosophical ideas, it can be characterized as atheistic, materialistic, and sensualistic. This may well be its most remarkable aspect, particularly noteworthy in light of contemporary intellectual currents. According to this perspective, what is commonly referred to as God, Creator, Providence, the Eternal, etc., are deemed to be theological-metaphysical arrangements, logical artifices, hypotheses that were initially necessary to explain the surroundings but are no longer needed. Even Laplace and Lalande no longer felt the need for such an explanation. What was once God is now humanity or universal human love (Love and Truth), from which everything good comes—life, wealth, abilities, education, tenderness, courage, and so forth—mainly through the mediation of our ancestors. God is merely a human concept endowed with human attributes, which must be returned to humanity. The existence of God is primarily refuted by the so-called Law of Causality or the question of the cause of God, along with the fact that everything is regulated by unchanging laws. While theological belief always explained the world and humans through divine intervention, positive belief teaches that all events concerning the world or humans emerge according to unchanging relationships, called laws. (Robinet, ibid.). Man is not a creation of God, but God is a creation of man. *) God is referred to as an imaginary being to which Positivists ascribe a real existence. The highest being we can comprehend is humanity itself in connection with universal human love, and so-called atheism has no relation to irreligiosity or godlessness. **) Nevertheless, the Positivists recognize a so-called Grand-Être, which, admittedly, may have little to do with what we commonly understand as a great or supreme being. Rather, it is entirely of human nature and, if we have not misunderstood the reporter, seems to denote the totality of all thinking beings or even all great thoughts, feelings, and deeds of humans, both past and present, as well as future. The Grand-Être rejuvenates continuously in each new generation, and individual creatures are merely its temporary organs or servants. However, one can also become its permanent or enduring organ through great thoughts or deeds. "Every true servant of the Grand-Être," as Robinet says, "possesses in reality two successive lives; the one, the

so-called actual life, is temporal but immediate; the other, which begins only after death, is enduring and indirect." Thus, the physical, temporal life of all great men in space and time was limited to a very small point, while their non-physical, enduring life extends to infinity based on the growing influence of their works or deeds. Therefore, the Grand-Être seems to represent a concept abstracted from and simultaneously personified by the general works of human love throughout all times. "Earth is, in a way, its stage. It, the space in which it moves, and the Grand-Être are the only things accessible to our knowledge and leave no room for any external or supernatural intervention." (Robinet.) Therefore, the whole must be regarded as a thorough reduction of the divine to the human, not only in a theoretical sense but, as we will see in more detail below, also in a very practical manner. Gall, as highly esteemed as he is among the positivists, has made many mistakes, especially in setting up a brain organ for God and religion! Such a thing does not exist, and Comte calls this proposition an "absurd extravagance."

Materialistically, the religion of the Positivists is insofar as it considers everything spiritual on Earth as inseparable from matter, including consciousness. What lies beyond matter, what is elsewhere, or what predates it, we do not know and therefore, it does not concern us. The world is not created for humanity; rather, humans are governed by the world and their surroundings. One can conceive of the world without humans, but not of humans without the world.

Finally, in a sensualistic sense, Positivism rejects anything supernatural and metaphysical, declaring the two greatest laws discovered regarding the human mind: one found by Aristotle and confirmed by Gall and Broussais — Nihil est in intellectu, quod non fuerit in sensu (Nothing is in the intellect that was not first in the senses) — and the other found by Comte, stating that all our concepts must pass through the three stages of theology, metaphysics, and positivism.

Regarding the question of continuation, positive religion seems to accept it only through the good deeds performed in life, which are transferred from the living to the future in the same way they were transferred from the deceased to the living. Individuals are organs of human love and, in this sense, immortal. Their second life will last as long as our planet and the order of our solar system. Individual life is nothing in itself but a part of collective life, constantly progressing as the living are increasingly influenced by the dead, who represent the better part of universal human love or the Grand-Être. This is the noble continuation that Positivism assigns to the human soul or the entirety of moral, intellectual, and practical abilities that characterize every servant of human love." (Rebinet.) In general, individual life or life as an individual is not something real or natural, but only an abstraction, as seen, for example, in children not speaking of themselves in the first person initially and learning it gradually. Death is only a metamorphosis of matter, necessary to propagate the organs of the Grand-Être.

Not in an "unlimited and icy sky," which, according to the doctrine of immortality, cannot exist, as we are already within it according to astronomical observations, but in ourselves, we must seek and find satisfaction. It is in the spiritual connection that forever links us with the dead and the future. "One understands how this positive understanding of future life, aside from being the only true one, becomes extraordinarily fruitful and beneficial because it alone can serve the dead as a reward and the living as consolation—better than the necessarily

selfish and conceited theological belief can ever do." (Robinet.) The purpose of life is physical, intellectual, and moral perfection, initially for others, but after death, to live in and through others. There are, however, no external purposes in the world; each existence is its own purpose.

Now, if we inquire into the true nature of "positive religion," it seems to be, in brief terms, practical morality, albeit with specific church institutions and a socialist societal or state form. This entails a convergence of science, philosophy, and religion, akin to what occurred partially in the early stages of culture. The goal of this morality lies in the acknowledgment and implementation of universal human love, following the prior regulation and transformation of selfish impulses in humans. The moral principle of Positivists, the foundation of all their duties, is encapsulated in the beautiful maxim: Vivre pour autrui (Living for Others). Among all the endeavors of the human mind, morality stands as the first and foremost, with everything else serving only to perfect it. It is both an art and a science. The true greatness of humans resides in the heart and its development in line with the love encompassing the totality of our sympathetic instincts or social inclinations. Humans inherently possess seven selfish instincts and only three social instincts. Through Positivism, its institutions, and the educational system it establishes, human nature is intended to undergo a gradual transformation in the functioning of its brain, such that selfish instincts gradually lose dominance and ultimately reverse into their opposite – social virtues and inclinations. Once this transformation occurs, individuals change from being self-centered and narrow-minded to becoming the most active, insightful, and loving beings. We must continually strive to overcome selfish instincts with social instincts, and once this is entirely accomplished, we attain an internal harmony in all our actions and activities, leading to a state of unparalleled well-being, granted by the enjoyment found in love. The greatest pleasure is the sacrifice for others (altruism); one never tires of loving. Loving is more than being loved; giving is more than receiving. The most religious person is the one who is most filled with love, who acts accordingly, and gives a social and humane purpose to all their actions; hence, the life ideal of the Positivist is to love, think, and act at the same time. "In short," Robinet apostrophizes at the end of a chapter on the theory of philanthropy with enthusiastic words, this highest ideal of Positivism, "philanthropy is a very real being, whose complex nature long concealed its existence, but which is now scientifically proven. It is the only true and real great or highest being! Infinite because it covers the world; eternal because it simultaneously embraces the past, the present, and the future; omnipotent because no other intellectual activity can compare with it. Our destinies depend on philanthropy; it is the one that shields us against external and internal accidents, defends us against physical evil, and fortifies us against moral evil. It is the one that diminishes the weight of natural imperfections for us and sweetens their bitterness; it is the one whose shielding hand, as the only providence on Earth, gradually lifts us from the misery of animality to the charms and grandeur of social life. In it is our support, in it is our strength, in it is our consolation, our hope, and our dignity! It is the foundation of our duty, the condition of our happiness; and the salvation of the world depends on its imminent arrival."

But not only does positive religion aim to be moral, but it comprehensively, in the expanded sense of the Positivists, encompasses the entire domain of human thought and feeling, specifically in three major divisions: 1) Morality and Poetry or the realm of the Beautiful; 2) Philosophy and Science or the realm of the True; 3) Politics and Industry or the realm of the

Good, corresponding to the three major brain functions: emotion, intellect, and will, or the three fundamental concepts of love, thinking, and action, which are the activities of the three major divisions or organ groups of the brain, located in the middle-top, top-front, and bottom-back. Positive religion recognizes two revelations of its principle or universal love, one through the Grand-Être or the totality of departed souls, and the other through woman, who is the truest and loveliest representation of human love or the best and loveliest personification of the highest ideal that a person can conceive. Overall, it seems that women are destined to play a significant role in positivist society; she is the only being before whom the Positivist bows the knee. As the purest expression of human love, she will be the best intermediary between the highest being and the individual human.

The positivist society is based on social foundations. Its tasks include the regeneration of education and the organization of work. In education, the well-known three stages of history must be repeated; it should be theological up to 7 years old, metaphysical up to 14, and then positivist up to 21 years. For this purpose, laws must be sought and established through experience, following the effects of the mind, heart, and character in order to seek truth with certainty, soften the heart, ennoble the character, and thus find the only solid and lasting foundation to end the great crisis and the resulting anarchy. Everyone has an equal right to general education up to a certain degree. What goes beyond that rests in the priesthood, which dedicates itself to the service of humanity and mankind and has to teach and explain everything upon request. Such a priesthood is necessary, as according to the positivists' belief, no society can develop without priesthood, and no religion can exist without it. However, it must renounce all wealth and personal greatness and only work for the whole; it is the interpreter and immediate organ of the Grand-Être, and its main task is education. The priests of humanity do not possess or inherit anything, not even from their own families, and they are even forbidden to derive any benefit from their work, hours, or books. Their services are unpaid, and they only receive their livelihood from the community. (Robinet.) They issue admonitions and various punishments, including expulsion, for members who violate rules. They are under a supreme leader, the High Priest of Humanity, whose eternal seat is Paris, etc. (The same).

That positive religion not only aims to be practical morality but also desires to be a real religion and church, or at least strives towards such through a common belief of many, is further evidenced by the fact that it establishes a cult, both private and public. According to Robinet, this cult is "a continual idealization of human life, a persistent culture of sociability, developing our altruism (love for others) from cradle to grave." Humanity can be worshipped, as God has been worshipped so far, albeit in a different manner. One can demand noble spiritual progress from the new Grand-Être, without expecting any material gain in wealth or power, which would be as ridiculous as it is unethical, and so on (Robinet). In general, any idea can be worshipped, even personified in a specific goddess or god-man for those who still need such an external expression of their worship. Positivism also acknowledges angels and guardian angels (ange-gardiens); they are personifications of ideal concepts, such as Good, Truth, Beauty, etc., and have their own cult in the religion of humanity. The three guardian angels of our heart and mind are Love, Reverence, and Kindness, synonymous with the three social instincts of human nature mentioned earlier. Therefore, Positivists pray, invoking their main guardian angels. A Frenchman named Longchampt has written a positivist prayer book *) containing prayers for each day of the week for family use. These prayers are dedicated to

the five fundamental connections that elevate the heart of the Positivist to the love of the highest being and humanity: love for children, brotherly friendship, marital tenderness, sacred fatherhood, and domestic care. The two remaining prayers focus on women and philanthropy. Additionally, there is a personal cult with prayers that cannot be subjected to a general formula since it varies for each person and age. The purpose of prayer is twofold: first, to serve our own improvement by developing altruistic tendencies and suppressing selfish ones, and second, to provide assistance to the Grand-Être.

Positivist politics is a politics of peace and love, which substitutes the supernatural concept of Right with the natural one of Duty, replacing war with industry and bearing the motto: "Live publicly." Peoples will be bound together by a common bond of general love and sympathy, as well as by a communal belief founded on moral and natural philosophy, and war, as well as all disputes over political forms, will disappear. However, the positivists do not desire democracy, revolution, universal suffrage, but, it seems, a rule of the spirit or at least a continual general approximation to the rule not only of what is commonly called the spirit, but of a doctrine based on love and positive truth. There will be a spiritual and spiritual reign of the peoples, similar to that of the popes in their good times, but of course for different purposes than theirs. Peoples are owed obedience and voluntary submission, arising from a belief and trust in the disinterestedness of a more human or more educated class, the positive mastery, and out of reverence for their higher knowledge. Even the smallest and weakest spirit can, in this way, naturally and without great effort, partake in all the intellectual achievements acquired through centuries of work, and so on. Positivism acknowledges equal rights for all people, i.e., the right to fulfill duties commensurate with their abilities. For the theological and metaphysical concept of Right will disappear from the political realm, just as the absolute concept of Cause vanishes from the philosophical. All will, under the rule of positivist doctrine, understand everything, albeit often only superficially, because this doctrine, as mentioned earlier, is the simple extension or expansion of common sense. The only difference between the priesthood and other classes will then lie in the degree of scientific and moral education, achieving on the political stage a kind of middle ground between aristocracy and democracy, which Comte calls Sociocracy.

Humanity is currently in its childhood and is now beginning to become partially mature. Since its inception, the egotistical instincts and personal needs that have guided it are continually and gradually transforming into social impulses. Considering what humanity has accomplished in the past despite prevailing egoism, ignorance, and weakness, what the future promises and can be foreseen will be incomparably more admirable than what has occurred so far. (Rebecque). Once the victory of humanity is decided, there will be "no sad hatred, no deceptive prejudices, no empty agitation or weakness anymore; instead, everywhere there will be compassion, clarity, and steadfastness, with people extending a brotherly hand to one another to benefit the common homeland; to bless it and fertilize the earth on which our general existence depends; to improve and beautify it; to make it a residence of happiness and peace, where everyone can fulfill their true destiny, which is to contribute freely to the preservation and perfection of humanity." (Robinet).

Rebecque's book concludes on its final page with the French translation of a well-known verse by Rückert, which at this point likely signifies a glorification of universal love:

"So strong is the power of love, that even God, who feels loved, must incline himself."

As well as further with the following stanza from a famous Latin hymn (translated into German by Schlegel):

"Whether love is suffering,

Whether suffering is love,

I cannot say;

But I do not complain,

Sweet is suffering,

When suffering is love!"

These are the condensed outlines of a system, the presenter of which claims that it shows a secure path for anyone ensnared in doubt or disbelief to quickly attain unparalleled well-being, previously unknown serenity, and tranquility of the soul. We have attempted to outline this system from the book cited above, as far as its often obscure and disjointed explanations allowed, without claiming to have fully understood the author's opinion everywhere. Nevertheless, we do not doubt that our readers have followed this brief presentation with interest. However miraculous the presented system may be, it also offers many interesting and remarkable aspects, particularly in a time whose philosophical tendencies align in many respects with the ideas laid out there. As for the general judgment regarding its worth or unworthiness, we do not wish to prejudge the reader's own opinion. We only allow ourselves the following brief remarks: We do not doubt that through a better education in the spirit of true humanity and compassion, a different and better nature could be made of humans than they currently are. We believe that one can educate them free from superstitions and prejudices, fostering love for their fellow human beings, instead of being nourished and raised with errors and imbued through school and life with a narrow-minded, selfish, and in this selfishness, cruel character. We also hold great respect for the noble and truly high-minded sentiment that pervades the entire system. However, we doubt its feasibility because we doubt that it will be possible to transform the selfish instincts of humans, which have become large and strong through millennia of cultivation, in such a way through social drives that each individual would only find pleasure in fulfilling the duties of universal human love. At least an extraordinarily long time would be needed for that, and the beginning would have to be made in a happier century than ours, which is fraught with disaster in all directions and whose humanity has not even outgrown the grossest contradictions of general education. Even the trait of sensitivity and emotional depth, which pervades the entire system, seems ill-suited to our iron age, obedient only to the resounding voice of metal. Our generation has strong nerves, and anyone seeking to improve it must not rely solely on its compassion. Guided through long years of intellectual and political unfreedom and by egotistical societal conditions where one's downfall establishes another's happiness, it would require powerful disciplinary measures to be liberated from the Egyptian captivity and molded into what Positivism ultimately wishes to make of it—a peaceful, happy, and social community.

However, the times when such an idyllic state will return to Earth are still distant, and it requires many preparations, only possible through the dissemination of general education, that it may be considered folly to engage with its institutions now. The unmistakably mystical and esoteric elements in the system, as well as the arbitrariness with which it assigns an expanded and even altered meaning to certain words or designations, might be a significant obstacle to its spread. Our time demands equality and clarity—clarity in thought and action—and is repelled by institutions that evoke thoughts of Freemasonry and the like. In general, the human race cannot be educated according to systems because it was not created by nature according to a system; and a constant struggle of opinions, directions, and institutions seems to be its life element. Even if this were not the case, it must be called a peculiar undertaking to seek to change human beings in their entirety through such largely external influences and arrangements! — The most interesting aspect of the system is likely to be found in its philosophizing direction, particularly in the energy with which it confronts the existing theology and metaphysics, and this has been happening long before a time when more serious scientific forces began to engage in a battle with these two. *) It is peculiar to observe how often an era retains its character through intellectual currents that, initially originating from various and entirely foreign and unknown directions, eventually converge onto a common path. Therefore, regardless of one's thoughts on "Positivism," it must be acknowledged that it, too, is among the "signs of the times."

According to him, Comte recognized in his three types or stages of philosophy (theological, metaphysical, and exact science) the fundamental principle of the intellectual development of humanity. While the first two are often and mostly hostile to each other, they agree in seeking the same absolute principles or an eternal true world beyond the world of experience and the senses. They often merge into each other because of this common pursuit. Opposing them is the exact scientific or positive philosophy, which solely focuses on the internal connection of actual phenomena and seeks a relative truth instead of an absolute one. We can know nothing about the foundation and essence of things, nothing about their "why," but only about their "how." The laws we discover through this approach are the ultimate explanatory grounds. Positive philosophy does not derive its content from empty speculation but from individual sciences, aiming to establish a unified systematic connection among them. The general significance of theology and metaphysics has outlived itself; on the contrary, there is a growing inclination of intellectual life towards the positive method. This method, already implemented in the natural sciences, must now be applied in the moral and social sciences. Science as such is neither idealistic nor materialistic; it seeks only to recognize facts and their connections. The true foundation of the future state will no longer be metaphysical but only anthropological, etc. The man who concentrates all the rays of this direction for his followers into a common focal point is Auguste Comte, almost unknown in Germany but gaining more recognition in England. From his writings, the profound statement shines forth: "True wisdom leads to love."

4. No more speculative philosophy

(1857)

This is the sharp and concise result pronounced in a philosophical work by D. F. Gruppe: "Present and Future of Philosophy in Germany," Berlin 1855 — a work that seems not to have received the attention it deserves in educated circles, and to the promotion of which we would like to contribute our modest share. We said: "in educated circles" because the work is intended for them, and as for the circles of philosophers or experts, they will undoubtedly refrain from speaking to the public about a work that mercilessly removes the hypocritical mask from their faces; they will try to remain silent about the author, as they once ignored a well-known philosopher who, admittedly, gave them a seeming right to such an attitude through the excessiveness of his attacks. Everyone knows the struggle that school philosophy has entered into with the empiricism of the natural sciences, and how the main argument used by philosophers against their scientific opponents always boils down to "ignorance of philosophy." The argument is one that gains the approval of the masses because it seemingly implies that anyone dedicating their time to empirical studies must remain an amateur in philosophy. Fortunately, natural science enthusiasts, to justify their disregard for systematic and school philosophy, do not need to rely on themselves; for even from the philosophical camp itself, individuals emerge who are not susceptible to this accusation. We will not speak of the philosopher Schopenhauer, who calls our philosophical heroes since Kant "deceivers," "charlatans," and the like, and we will only recall the judgment that we recently shared with your readers from the pen of an anonymous but honest philosopher. He declares scholastic philosophy to be dead and finds that since Spinoza and Leibniz, it has not progressed but regressed. Today, we denounce to your readers another equally honest philosophical traitor who holds a much stricter court against speculative systems and philosophers of all times and is just as ruthless against Aristotle and Kant as against Fichte, Schelling, and Hegel. He does not call the history of philosophy a steadily progressing one from within but rather a history of error with occasional glimpses of light, thus tearing down the whole deceptive purple of scholastic philosophy. Under the great cover of which, every philosophical dwarf claimed to stand on the shoulders of the giants who came before him. The author excellently delineates the contrast between empiricism and speculation as the opposition between science and philosophy and depicts the continuous triumph of the former over the latter or the inductive method (Bacon) of natural science over the deductive method of speculation.

There are no philosophical axioms, no self-evident truths or innate ideas, no inherently true or abstract concepts. All ideal-philosophical or speculative systems built on the foundation of such general concepts, whether idealistic or pantheistic, are entirely untenable. Bacon has already put an end to these systems, thereby establishing the beginning of true natural research. Through this path, the former has become rich, powerful, and respected, while philosophy, on the other hand, has fallen to the status of a "beggar." As for our modern philosophy, what Gruppe aptly calls "the era of dishonesty" can be dated back to Fichte. This dishonesty is now recognized, the reign of dialectic has expired, the arbitrariness of construction no longer receives approval, and "of all the brilliance of this philosophy, only the impression of sophistry remains." The author states that time has silently passed a death sentence on Kant, Fichte, Schelling, and Hegel, both on their systems and methods. Speculation has become timid, voices advocating for "experience" are rising, and all views agree that the previous paths of philosophy should be abandoned. However, one would

greatly err if they concluded from these remarks that the knowledgeable author is an enemy of philosophy altogether. On the contrary, according to him, philosophy should continue to be the heart and centre of all human knowledge. Still, it can only do so if it undergoes a complete reformation in the spirit of experience, empiricism, and the inductive method. This reformation must be radical and not merely, as some suggest, a retreat to Kant or Locke, as Kant also suffers from the incurable ills of speculation. The author excellently demonstrates how and in what way this reformation should take place in each philosophical discipline, particularly in logic, and how its relationship with other sciences should be shaped in the future. Metaphysics is to be abandoned because it deals with things beyond our knowledge. With all our knowledge and being, we are rooted in this world; there is an afterlife only for religion, not for philosophy. These two realms can peacefully coexist from now on, as they no longer mutually touch. Philosophy will refrain from discussing the ultimate causes of things, which are accessible to belief but not knowledge; it will disregard heaven and stay on earth. There will no longer be speculative systems or speculative philosophy, yet philosophy, as a new empirical philosophy, will truly begin and gain influence.

He who knows the nature and content of the philosophical struggles of the present will wholeheartedly say amen to these demands of the author; and we would like to add only our wish that this "Empirical Philosophy" not remain mere rhetoric this time but become a reality. Throughout all times, in the face of the excesses of speculation, the call for sobriety and "experience" has been heard, and speculation, to meet this demand, has often invoked experience, as it does again today against its adversaries. However, just as often, empirical philosophy has immediately become entangled in speculation again. One only needs to glance at our contemporary "textbooks of psychology as an empirical science" written by philosophers to understand what these gentlemen mean by "experience." Of course, one cannot hold it against them, for if they were truly to draw their conclusions from experience, they would have to decide to study facts and observations, perhaps even engage in observation itself, which, of course, would be much too inconvenient or extensive, perhaps even too difficult. They prefer to leave that to the "become fashionable medicine" or the "materialistic natural scientists," who have no right to speak in philosophy. Therefore, "experience" shall continue to be the watchword of philosophy, but genuine, based on observation and facts, and not the kind that immediately returns to the deception of pure speculation by a small detour! We conclude this review with the beautiful words of Ludwig Feuerbach: "What is nowadays called speculative philosophy is mostly the dirtiest, most uncritical thing in the world. There is only one foundation, one law of philosophy; it is called: freedom of the mind and freedom of conviction!"

5. The Cycle of Life

(Physiological Responses to Liebig's Chemical Letters, by Jacob Moleschott.

Mainz, by Zabern. 1st edition 1852. 2nd edition 1855.)

(1857)

We live in the midst of a period which, despite its political and, in many respects, also intellectual confusion, may still be regarded as a turning point in the intellectual development of the human race. Such a view may be considered by many, who have experienced the great and varied disappointments of the past years, as unfounded optimism, and indeed, the appeal to "turning points," "progress," "development," "eve of great events," and similar phrases has been heard so often and at such inappropriate times, and each time either been discredited or turned into its opposite, that one has gradually developed a thorough aversion to such phrases and to those who utter them. But all too easily, in such a mood, one falls into another extreme and becomes a pessimist without sufficient reason. If one wants to understand their time, they must step out of the narrow frame of the human age in which they live and position themselves on the higher vantage point of history. One would very much like to see the premonition of events they carry within themselves come true and despair because of the slowness with which the future approaches. But history does not measure time in human lifetimes; it measures in centuries and marks even the smallest of its steps with countless burial mounds. There is little comfort in that for the individual, but what is the individual in the eternal cycle of nature and history?

From such a standpoint, the assertion that we have reached a turning point in the history of Western thought, and thus in history itself, seems to us to require no special justification. Similar conditions and catastrophes, like the current ones, have indeed been seen throughout history. One might, for example, think of the period immediately preceding the French Revolution, which, as is well known, exhibits a remarkable resemblance to the present in its intellectual currents and philosophical struggles. Therefore, the present movement in the field of realistic philosophy is often not only compared to that period but outright equated with it, which, of course, again represents a complete misunderstanding of the true character of the current movement. This true character, which gives it a completely new, more comprehensive, and more solid foundation than the French movement, is obtained through the involvement of positive sciences. The intellectual movement that Voltaire, Rousseau, and the Encyclopaedists stimulated was deep and lasting enough, but its impact can be considered small compared to the influence that contemporary natural science has on minds and will have. For the former mainly relied on opinions, while the latter is rooted in the unshakable and doubt-conquering ground of facts.

This involvement of the natural sciences in the philosophical struggles of the present is also what gives the book we are discussing here a significant part of its value and has secured its success among a wider circle of the educated. It is one of those books that stand on the boundary of the current developmental struggle and which first shed full light on the relationship between the natural sciences and philosophy, theology, morality, as well as on the general scientific and social questions of the present. Until its publication, anyone familiar with the educational path of the time might have had an inkling of the influence these sciences would gain on its course, but no one knew for sure. Until then, popular works of this

kind had either avoided or only hinted at these relationships; scattered remarks and incomplete observations were all that was allowed.

Returning to Moleschott's book, it holds a special and prominent position precisely because, although aphoristic in its entirety, it delves much deeper and more comprehensively into those general relationships than all its predecessors. While its initial tendency seems to have been fairly specific and, in its role as a polemic against Liebig, even limited, Moleschott's spirit, directed towards the general, could not be content with that and turned to the educated masses wherever the opportunity arose, especially in his concluding chapters. The less people knew about these matters previously, the more Moleschott's hints had to captivate or interest them, and scarcely did a book appear thereafter, addressing contentious issues in general education, that did not somehow cite Moleschott. Thus, a considerable part of his success, apart from his own merit, is attributed to the current favorable circumstances. The nearly complete bankruptcy of theoretical or school philosophy, the desire for something new, and the general interest in scientific studies overall, which had experienced a significant upswing thanks to Humboldt's Cosmos, all worked together to secure the book's success and its position.

Additionally, it was announced as a polemic against Liebig's "Chemical Letters," which had themselves garnered unusual attention. Liebig's confused and self-contradictory hints about knowledge and belief had confused his readers, and most hastily turned to Moleschott to resolve this dilemma. In this manner, the book acquired a standing and significance in literature that Moleschott himself could neither have foreseen nor hoped for to this extent, and this standing continues to gain respect daily as the scientific dispute, partly initiated by its publication, becomes more massive and significant. This dispute is not settled, as some shortsighted individuals believe, but we are only at the end of its beginning. The impact and even the enthusiasm that Moleschott's book has stirred in individuals who, for the first time, became acquainted with the intellectual direction he represented may be witnessed in the recently published letters from Mathilde Reichardt to Jacob Moleschott, full of extravagant enthusiasm. "The Circulation of Life" was first published in 1852 and, in the past year, in a second slightly expanded edition. *) After having characterized, as seemed necessary for such a book, its general and significant position in literature, partly due to its own merit and partly influenced by circumstances, we can now turn to a few words regarding its content itself. In the preface, Moleschott, whose writings are all permeated by an intimate and warm love for the people, declares his intention to stimulate the people through thought developments grounded in "facts" and "drawn from the well of reality." Following a frank address to Justus Liebig, in which Moleschott openly declares himself as Liebig's opponent and a popular writer, the first letter immediately presents the sharpest contrasts in the general consciousness of the present—revelation and natural law facing each other. Indeed, it may be a disheartening phenomenon that, after more than three thousand years of intellectual work and in the face of a time that believes it has achieved the utmost, there is a serious effort to make people understand the incompatibility of revelation and natural law. Moreover, this effort is directed towards men who stand as leading figures in education. Moleschott does this and demonstrates that the path of revelation does not lead to "investigation" but to "praying." He also argues that Liebig has unclear ideas about the ways in which knowledge of the divine should be gained and that his urge for reconciliation leads him into apparent contradictions. In the second letter, addressing the sources of human knowledge, Moleschott confines

philosophy to the limits of the factual and Paracelsus's "experience," illustrating how all human knowledge originates from the senses. According to him, experience and philosophy must merge. The third letter deals with the immortality of matter, one of the greatest and most consequential truths brought to light by modern natural science, conclusively proving its superiority over speculative philosophy and theology. The following letters contain numerous interesting, albeit quite aphoristic, remarks and information about the laws of osmosis and endosmosis, cell formation, nutrition and metabolism in plants and animals, rational cultivation of the soil, the influence of the soil on our mental cultivation, and similar topics. The most heated point of contention between Liebig and Moleschott arises in the ninth letter, where the latter protests against Liebig's classification of food into nutrient and respiratory substances. Despite the well-founded nature of the author's observations, they do not significantly diminish the general value of that classification, which was groundbreaking in the physiology of metabolism—as long as it is not taken in a strictly literal sense and stripped of Liebig's added teleological views. The tenth letter discusses the chemical transformations of food in the animal body, demonstrating that digestion is a chemical and mechanical process. The eleventh letter speaks about the often insufficiently appreciated significance of inorganic components in plant and animal bodies, while the twelfth letter discusses the importance of chemistry in understanding animal metabolism. With the candor that is the inheritance of people of conviction and love for truth, Moleschott, in this and other letters, fully acknowledges the undeniable scientific merits of his opponent Liebig. very much in contrast to the petty and affected manner in which he recently attempted to denounce his scientific opponents to the public as "amateurs and ignorants." The thirteenth letter addresses the chemical metabolism of plants and reveals how, with the help of chemistry, some of the most delightful products of the plant kingdom can now be conjured from retorts and spirit lamps! In a very interesting way, the author highlights the contradiction between the products of the regressive metabolism in plants and animals, demonstrating how in plants, formation and decay, life and putrefaction, are much closer than in animals. This is solid natural philosophy, if one wishes to speak of such, not the thoughtless play of speculative dreamers with artificial analogies, where small similarities are elevated while significant differences are overlooked. Throughout, the author shows how what we love to call decay, decline, death, is not present in nature in that sense, but in the tireless cycle of metabolism, there is neither beginning nor end, and the highest life germs are again found in regression and demise. The fourteenth letter acquaints us with the sources of warmth in organic bodies and demonstrates that warmth is only a consequence and expression of metabolism. The fifteenth letter delves into the development of matter "from earth, air, and water to the creation of growing and thinking beings" and refers to the affinity of matter as the "creative omnipotence." According to Moleschott, this insight into the cycle of matter establishes a new worldview, prepared in the "deep sayings of the Encyclopedists" and now receiving its scientific foundation. The sixteenth letter discusses the dependence of the organism, both physically and mentally, on the food or substance supplied to it, thoroughly refuting Liebig's opposing view. In relation to the often-discussed question of the most beneficial diet for humans, it becomes clear that nature has directed them to a diet mixed with plant and meat, appreciating the peculiar practices of the so-called vegetarians. This is followed by interesting remarks on the significance of tea, coffee, spices, and alcoholic beverages for nutrition, metabolism, and mental development. The seventeenth letter addresses the relationship between force and matter, a topic widely discussed in recent times from various perspectives. With deep

foresight, Moleschott sees in the conflict that develops from here a "world-shaking force" and opposes the false notion, closely linked to misconceptions of utility, that the properties of bodies are externally supplied to matter. At the same time, in this letter, it is demonstrated that organic and organized substances can arise from inorganic basic elements and inorganic compounds, thereby delivering a fatal blow to the infamous concept of vital force. The distinction between organic and inorganic is only a matter of more or less complexity in the composition of substances. Once the substance reaches a certain degree of complex composition, the organized form of life emerges. Moleschott also reveals unclear ideas and strange contradictions in our renowned Liebig, particularly regarding the relationship between mind and matter, brain and soul. The eighteenth letter is titled "The Thought" and applies the general principles established in previous letters to the relationship between spirit and matter, brain and soul. Moleschott's discussion of the well-known phosphorus-brain controversy is insightful and convincing, as anyone who takes the time to read it will find. Fortunately, Moleschott states, "it is not necessary to remind Liebig that the explanations of even the most famous men fall powerless against the unpretentious voice of thorough investigations." In this letter, the author also justifies sensory experience as the foundation of all human knowledge against the views of ideal philosophers and the doctrine of innate ideas. He demonstrates how even the most abstract concept can only be developed from the real world of phenomena. The nineteenth letter addresses one of the most prominent questions in philosophical and theological struggles throughout history—a question that only begins to receive somewhat sufficient illumination today through the factual demonstrations of natural science. It is the infinitely important question of the freedom of the human will. Certainly, Moleschott goes too far when he calls the will "merely the necessary expression of a state of the brain conditioned by external influences." If this were the case, we would indeed be little better than automatons. However, as certain as it is that the intellectual being is linked to material movements in its appearance, it is equally certain that, in the course of its material development, it acquires an independence that allows it to make a free choice between two possibilities in one direction or another. Granted, this choice is not entirely free, as a multitude of other natural and necessary influences act on the course of the deliberation from which it results. However, these influences are mostly not the immediate ones that Moleschott has in mind but rather indirect ones, which at least leave the will a certain scope. Otherwise, how could one speak of will or volition, and how would physiology distinguish the so-called reflective movements from the voluntary ones? With the eloquent words of Madame de Staël: "To comprehend everything would mean to misapprehend everything," Moleschott concludes his letter by pointing to the elevated and truly humane standpoint to which the new philosophical worldview based on the contemplation of nature raises humans in relation to their fellow beings. In his twentieth and last letter, Moleschott defends this new worldview against its opponents and dismisses the objections of those narrow minds who, with their entrance, see everything great, beautiful, and sublime fleeing from the world. In close connection with this, Moleschott provides evidence that science will one day be able to teach such a distribution of matter brought about artificially, "where poverty, in the sense of an unsatisfied need, becomes impossible," and thus the correct solution to the great social question lies in the hands of the naturalist! This is the content of a book that should not be left unread by any educated person, partly due to its intrinsic value and partly because of the position it once held in literature. Through the sincere and impartial praise we have given it, we believe we have earned the right to address some of its shortcomings. The book presents

itself as a popular book but is, in fact, neither a popular nor a scholarly book, as it is too scholarly for the general public and too unscholarly for scholars. Those who wish to write for the people must set aside terms such as "uric acid ammonia, organic bile acid, butterfat, and goose foot base" and the like. Instead, they must outline in broad and sharp strokes the general and significant results of scholarly investigations that have implications for life. They should show what science has discovered and conquered but should only occasionally discuss the means and methods by which these achievements have been realized. Furthermore, the writing should be perfectly clear and understandable – a requirement that Moleschott does not always meet. Lastly, it should be shorter than this book. We are almost convinced that a large portion of Moleschott's readers has skipped a considerable part of it due to a lack of understanding or interest in the details presented, and another group has been completely deterred from reading it due to its length. Another criticism we have against Moleschott in this book is his aphoristic writing style. He does not follow through or exhaust a thought once started but jumps from one idea to another, from one remark or fact to a second, which may belong to an entirely different sequence of ideas. We think we are about to receive specific information on a certain subject, and suddenly we find ourselves in a completely different intellectual realm. Thrown-in sentences, disconnected remarks are indeed excellent means to stimulate the reader's own reflection, but entire chapters dealing with crucial matters should not be spun out in this manner. Whoever wants to write popularly or, in general, effectively, must cling to their chosen subject and not let it go until they have educated, convinced, or turned the reader into an opponent. That Moleschott knows how to write in this manner, he has demonstrated elsewhere and will, as we hope, continue to demonstrate frequently.

6. The Immortality of Force

(1857)

Great scientific truths are usually recognized by two characteristics: firstly, by their simplicity, and secondly, by their relatively late discovery, which often leads to general astonishment that they were not found earlier. This was the case with one of the greatest and most significant truths that modern natural science has revealed, namely the so-called "Immortality of Matter," and it seems to be the case with a truth that is destined to present itself as an equally important counterpart, or better said, as a complement to it, namely the "Immortality of Force." Once correctly understood, there can hardly be a simpler or more self-evident matter than this, and yet physicists have only recently become attentive to it in our days. It is so natural that anyone can see it, and in its broadest outlines, it already follows from the simplest consideration of the relationship between cause and effect. Logic and daily experience teach us that no natural motion or change, and therefore no manifestation of force, can occur without giving rise to an endless chain of subsequent motions or changes, and force manifestations, as every effect must immediately become the cause of a subsequent and equivalent effect, and so on indefinitely. Nature knows no standstill, of whatever kind it may be; its entire existence is an incessant cycle in which every movement, arising from a previous one, immediately becomes the cause of a following and equally significant movement, so that nowhere can there be a gap, nowhere a loss, but also nowhere a gain. No movement in nature emerges from nothing or goes into nothingness, and just as in the material world, each individual form can only realize its existence by drawing from an immense but eternally constant supply of material, so does each movement draw the basis of its existence from an immeasurable, eternally consistent reserve of force and sooner or later returns the amount of force derived from it to the entirety in some way, and this not only in general but according to very specific principles of equivalence or equilibrium. A phenomenon of motion can become latent, i.e., temporarily transition into apparent concealment, but it is not lost; rather, it transforms into other qualitatively different yet equally valuable or equivalent states of force, from which it later emerges in some other form. Friction can turn into heat, light, electricity, linger in these states, and later reemerge as friction or in some other form of motion. When two pieces of wood are rubbed together, heat is generated. Conversely, heating a steam engine produces, through warmth, friction and motion in reverse; scientifically expressed, heat has been "converted" into movement, and one can say: heat is nothing more than a form of movement, or movement is nothing more than a form of heat. Gravity also converts into motion, as observed in any pendulum clock, and in conjunction with the so-called centrifugal force, it is the cause of the grandest and most well-known example of celestial bodies' motion. Thus, it might seem that there exists only one eternal primal force, and the individual natural forces we know are merely different manifestations and states of this primal force, flowing out and returning in various forms but always equivalently. Whether this is the case or not, the few examples cited by us already indicate that there is an inherent connection and relationship between all natural forces, deserving the utmost attention of physicists and philosophers. Indeed, the efforts of the former have increasingly turned towards this subject in recent years. Evidence of this is found in the works of Helmholtz (On the Interaction of Natural Forces), Grove (The Correlation of Physical Forces), Faraday (On the Conservation of Force), Baumgartner in Vienna, and others. All deal with the remarkable interrelationships that bind different natural forces, their

mutual transformations and conversions, and their equivalent representation. They strive to establish a law that, as we will later justify, might best be termed "immortality of force." A. Helfferich, in a recently published pamphlet on "Recent Natural Science, etc.," asserts that it is now almost universally accepted by physicists that force is nothing more than a specific type of work. He points out the mutual interrelationship between all natural forces, with emphasis initially on heat, leading to what he calls the "unity of force." The author himself received a commendable letter in these days from a person whose name holds a highly reputable scientific standing and whose familiarity with chemical-physical works should particularly qualify him to pass judgment on this interesting subject. We believe that by sharing the essential points from the work sent to us, we are providing a service to your readers, especially as they have recently been alerted to this matter by one of your esteemed collaborators. We extract from the lengthy article, generously provided by Mr. Mohr with numerous factual proofs and explanations, only what serves to elucidate our statement. We aim to make it accessible to general understanding through a popular adaptation.

Just as inexhaustible and indestructible as matter is, so is energy. Energy is bound in an infinite amount to the existing infinite quantity of matter or bodies and manifests itself through it. It must be considered an absolutely established experience that there is not a single case where energy is generated or destroyed. In all cases where forces manifest, they can be traced back to their sources, meaning one can demonstrate from which other forces or energy effects a given amount of energy has been directly derived or through conversion.

The most common form in which energy appears is: light and heat from celestial bodies. All forces occurring on Earth can be derived from the sun. Flowing water, the streaming wind, the warmth of the animal body, the combustibility of wood, coal, etc., can easily be attributed to the sun. The coolness of the forest arises from the transformation of solar heat into chemical difference, and by burning wood or coal, where the solar principle is deposited, the entire amount of once disappeared solar heat can be brought back to light. At the same time, we find in this transformation a means to convert heat from lower degrees to higher intensities. While the sunbeam shows only 30 degrees on the thermometer, by burning the coal produced by that beam, white-hot heat can be produced. Similarly, the conducted heat on the other side decreases its intensity by propagating to larger masses, but its quantity always remains the same, unchanged. Through radiation into the cold space, it returns from the Earth, after temporarily manifesting here, to the vast world and heat ocean until it is stopped by a heatless body and must reappear as sensible heat or mechanical force; however, nothing can be lost on this path. If an individual heat ray is absorbed by a sun, it increases the quantity and intensity of its heat until it is emitted back into space and is now called upon, through this process, to assume any other forms, to transition into other forces or states. For example, the cohesion and chemical properties of metallic iron, which was reduced from iron oxide by the force of coal, are nothing more than the final effects of the heat radiated by the sun; since the coal was once deposited through plant life by light and heat from carbon dioxide, all properties of iron and steel produced with coal ultimately derive from the elemental force of the sun. The more coherent the body that was thus represented, the more heat it needed for its representation, and cause and effect are everywhere in perfect mutual equilibrium in these processes. The force with which the locomotive rushes forward is a drop of solar heat converted into work by a machine, just as the work that creates thoughts in the thinker's brain or forges nails in the arms of the worker. This leads us to the so-called

"conversion of forces," which occurs in a similar manner to the chemical representation of elemental substances, based on specific equivalents or equilibrium numbers. We first need to clearly understand how the conversion of one force into another must be conceptualized in a more precise way.

It is the first and foremost principle of Newton's world construction that an existing mechanical force can never cease to act, and a moving celestial body must continue in perpetual motion with the force of the imparted impulse—provided it is not stopped by other stronger forces. The only example of such unimpeded motion in nature is planetary motion, where the hindrances to motion present on Earth, which ultimately bring any movement to rest, are absent. Yet even on Earth, we can approach the manifestations of this law more closely as we succeed in eliminating those hindrances to motion. A freely suspended pendulum with minimal friction at the support point swings for 24 to 30 hours due to a single impulse; a Bussol's gyro of 5 pounds weight rotates for an hour on a smooth agate surface; a stone thrown over smooth ice travels twenty times farther than the strongest man can hurl it through the air. The mechanical force imparted to the pendulum, gyroscope, or stone, after all three have come to rest, has not been lost, as it might seem, but continues to exist in a different form and combination. Part of this force has transferred to other movable bodies, such as the air; another part has been converted into heat through friction, and a later part has been used to overcome cohesion (wear). Therefore, on our Earth, every motion must eventually cease without a new supply of force, as we are unable to free them from those natural hindrances. This also highlights the absurdity of the belief in perpetual motion! No force or motion can generate itself; it is always the result of a previously received impulse, providing, in turn, an impulse extending into infinity for subsequent expressions of force or manifestations of motion.

Let us examine the force more closely with which we lift the weight of a pendulum clock with a pull of our hand; in this example, we have a so-called mass movement where all the molecules of the heavy body move forward in parallel with their original position in space. The applied force is measured by the weight's magnitude and the height of the falling space. This same amount of imparted mechanical force is now transformed or converted into countless smaller movements by the clock's operation. A portion of that force is carried away into the air for sound generation during the ticking of the escapement, another part is released into the surrounding stationary air through the movement of the clock's components, and yet another part is used to overcome cohesion or for wear and tear. However, when these small effects are combined, they are, in total, equal to the magnitude of the force that wound the clock!

Choosing another example, we may ask: What happens to the moving force during the collision of elastic or inelastic bodies? Imagine two equally heavy elastic spheres, such as billiard balls, running centrally toward each other with any velocity; after the collision, they move back with exchanged velocity, just as if they had penetrated each other. It is clear that the sum of the motion after the collision is the same as immediately before it. In this case, there is no impression, no dent on the balls, and no warming of the impacted areas. Conversely, if two inelastic balls, such as lead, run centrally toward each other, they both come to a standstill after the collision but have taken an impression and become warm. This impression is akin to increased cohesion and is equivalent to a part of the force used during the collision. The denser lead has greater weight and requires more force to be mechanically

separated and more heat to be melted than the uncompressed lead, so the mechanical force has merely assumed another form, in this case, greater cohesion, but it has not disappeared. The part of this force that was not used to increase cohesion has transformed into heat. If there were cases where forces were destroyed and none where forces were newly generated, the universe would gradually come to rest, as the initially present reservoir of force could diminish but not increase. If the opposite were true, light, heat, and motion would continually increase. However, none of these cases exists in reality; instead, the sum of the once-present forces remains the same and unchangeable, with only the forms in which they appear being variable.

The force, however, is not only immortal but also unified. Every force can be transformed into any other, and likewise in reverse. The doctrine of the transformations of forces is simply called Physics. A physical apparatus is a device in which forces are transformed into others. Although by far not all such transitions have been recognized or discovered, many have been. In the electric machine, for example, the mechanical force of the arm, arising from the chemical difference in the respiratory process and originating from the light and heat of the sun, is transformed into electrical attraction, flow, combustion, and annihilated cohesion. In the Voltaic cell, chemical difference, the zinc's affinity for the oxygen in the water, is converted into electrical current, heat, light, and mechanical work (electric telegraph!). The effect is equivalent (of equal value) to the amount of galvanically dissolved zinc or other saturated affinities each time. This also reveals the untenability of the so-called electrical contact or touch theory. If contact or touch were the cause and not just the condition for electricity generation, then the generated electricity would not have originated from any force, in other words, it would have been created from nothing, as contact is not a force but only a spatial relation. The emergence of a force from nothing goes against the laws of thought as well as experience. The contact theory attributes both the mechanical and chemical effects of the column to nothing; on the other hand, the chemical theory, which attributes all electrical effects to balanced chemical differences, thoroughly explains all phenomena of the column. It predicts the direction and strength of the current for each combination and, from the outset, teaches about the substances that generate strong electrical currents. If contact were the cause of the development of electricity, the contact should decrease with the appearance of electricity and eventually cease, because it is impossible for an effect to occur while the cause continues unchanged. Since this does not happen, contact cannot be the cause of electricity development. The fact that electricity cannot be obtained from nothing and that it is always equivalent to the generating cause is most convincingly demonstrated by comparing three voltaic cells that, despite equal electricity development, produce unequal effects. Take three equally strong, equally sized, and equally filled ordinary zinc batteries, regulate them through resistors and galvanometers during use to generate an equally strong current. The first battery A is then closed by a platinum wire, the second B operates a Stohrer's rotation apparatus, and the third C is closed by a water decomposition apparatus. Now observe the following: the wire from A becomes warm or glowing, the wires from B and C remain cold. However, B produces a working force that, when used to generate heat through friction, produces an equal amount as that flowing from the wire in A. Finally, the heat produced by the detonation of the gas from C is the same as that emitted by A and generated by B through friction. Each individual battery, in turn, produces an equal amount of heat. A in the form of heat, B in the form of labour, C in the form of chemical difference (hydrogen) would have been generated if the amount of zinc oxidized in the battery, which is

equal in all batteries assuming the equality of the current, had been directly converted into oxygen for combustion. It is clearly evident in this context that electricity is not obtained for free, and when used in one form for an effect, it is lacking in the other form. In general terms, the relationship between action and cause is eternally equal. And how could it be otherwise? If we consider the combustion of coal in the steam engine as the cause of heat and power generation, how could it be different in the electric machine, where power, heat, and light are also produced? Chemical affinity is converted into labour, although not directly but through intermediary steps; in the steam engine, it's through the intermediary of heat, and in the electric machine, it's through the mediation of electricity. It is indifferent how the transmission or transfer of power has occurred, whether a mechanical force is derived from the oxidation of zinc or coal, from Niagara Falls, a windmill, or the arm of a person; it is and remains at all times only a derivation from the available reservoir of energy in the universe and cannot originate anew.

The so-called conversion of forces provides us with the most striking example of the mutual relationship between work and heat. Let a water wheel be turned by a waterfall, driving a wooden massive wheel in a closely fitting hollow metal cone; in this case, mechanical energy is converted into heat through friction, and one can heat a room with a waterfall (or a stream or a windmill)! In the steam engine, chemical differences are converted into heat through the combustion of coal, and part of this heat is then transformed back into mechanical energy by the machine. A significant portion of the generated heat is carried away with the steam, resulting in a loss for the machine's efficiency. The work of the steam engine, converted from mechanical energy to heat through friction, plus the escaped heat, equals the heat of combustion of the coal. The amount of heat produced by the aforementioned friction machine is also equal to the solar heat that evaporated and lifted the water to generate power, and to the heat of combustion in the steam engine that produced enough mechanical energy through friction to generate the same amount of heat. It is rarely successful to convert the entire quantity of one force into another for specific purposes, as large quantities are usually lost elsewhere—lost to the immediate purpose at hand but not lost to the universe. In a rifle, for example, chemical differences between saltpeter, sulfur, and coal are converted into work through the mediation of heat. The entire heat generated from the combination of coal with oxygen to form carbon dioxide and potassium with sulfur to form potassium sulfide, minus the heat of formation of nitrogen and potassium into nitric acid and potassium, is supposed to be converted into work. However, part of this heat is used to heat the rifle barrel, and another part is lost as sound in the air. One of the most beautiful cases of equivalent representation of forces has recently been discovered by Foucault. If one rotates a metal disc around a central axis, the only obstacles to overcome are the axis friction and air resistance. However, if one suddenly brings the poles of a strong magnet or electromagnet over the rotating copper disc, the disc heats up, and at the same time, a significantly increased resistance of the disc is noticed, making it much harder to rotate. As is known, in a conductor rotating near a magnet, an electric current is generated perpendicular to the direction of movement. As these currents are continually generated in the rapidly rotating disc, the disc must become warm and, under certain circumstances, even glowing. However, the appearance of this new force must be derived from another force, and the experimenter immediately notices that it is his arm that provides this force, as the disc is much heavier to rotate than before. If the magnet is removed, the disc cools down and immediately becomes easy to rotate again. Here, the mechanical force of the arm has been converted through magnetism into electricity, and this,

in turn, has been transformed into heat through electrical resistance. It is the reverse of Arago's experiment: If the floating needle follows the rotating metal disc, the disc remains cold; however, if one brings the magnetic needle close, the disc must become warm.

To generate light, we require a constant production of heat, brought about by the equalization of chemical differences. We can retain heat through poor conduction, but light, having no conduction, cannot be held together. Now, one might ask, where has the light gone when the lamp is extinguished? It is contained in the form of heat in the walls of the illuminated room! So far, Mr. Mohr! Everything he presents converges in the statement: Power cannot be created nor destroyed - a maxim that provides our contemplation with as broad and secure a foundation as the long undisputed one about the imperishability of matter. If this maxim is confirmed through continued investigations by physicists in all directions, which is hardly doubted, then we have gained a specific scientific expression for a natural truth. Knowledge of this truth promises equal benefits to physics and philosophy, shedding an entirely unexpected light on numerous previously more or less obscure processes. Certainly, nature offers many examples that undeniably seem to the layman's understanding as if a force were generated from nothing or passed into nothing. But this is only apparent because a change in force possesses a great resemblance to the creation of force to the scientifically untrained eye. A more precise investigation would undoubtedly reveal each time that in no natural process has an atom of force or motion been lost; instead, there exists an uninterrupted and endless chain of mutually dependent changes. When a stone falls to the earth, the stone has not, as it might seem, lost its kinetic energy to the earth inactively. It has not become nothing, but two unequally sized bodies, the stone and the earth, have moved towards each other, where, admittedly, the movement of the latter, being of immense mass compared to the stone, is entirely imperceptible to our senses. The collision of both must produce the same effects as in the examples cited above by our informant, Mr. Mohr. Thus, neither the force nor the motion of the stone has been lost, as it has stopped the earth in its motion just as much as it has been stopped by the earth in its own motion.

This law of the indestructibility of force has been given various names. Faraday, in his aforementioned lecture held at the Royal Institution in London on February 27, d. 3., calls it "The conservation of force" – a term your reporter translates as "Conservation of Energy." Helmholz also explicitly calls it the "Principle of the conservation of energy." Another translator in the "Ausland," 1857, No. 16, translates it as "Inviolability of force." Others call it "Equivalence of forces," "Equilibrium of all movements," "Unity of force," and so on. We have chosen the expression "Immortality of Force" because it seemed to us to best describe the essence of the matter, because it forms the most fitting correlate to what is now commonly referred to as the "Immortality of matter," and because it also recommends itself by not only conveying the physical but immediately hinting at the philosophical significance of this new truth of nature. The immortality of force, like the constancy of matter, points towards an endless and beginningless connection between cause and effect, towards eternity, infinity, and immortality – not of the individual or specific, but of the great or whole. The more science progresses, the more it recognizes that nothing is created and nothing disappears, but everything rests in an eternal, self-sustained cycle, where every beginning leads to an end, and every end to a new beginning.

7. Franz against Schleiden

(1857)

Professor Schleiden in Jena must endure being publicly mentioned in connection with things that are very distant from him from time to time. Recently, the author of Zendavesta or "Things Beyond" discovered such a connection between him and the Moon and made it the subject of his own book titled "Professor Schleiden and the Moon." However remote this connection may be, it can hardly be closer than the one Dr. A. Frank, Doctor of Theology, Superintendent, and Senior Pastor at St. Jakobi in Sangerhausen, has discovered between Mr. Schleiden and the "pretensions of exact natural science." This discovery prompted him to pursue Mr. Schleiden as a champion of materialism with his formidable "polemical glosses." (See his: Dr. A. Franz: The Pretensions of Exact Natural Science, illuminated and accompanied by polemical glosses against Professor Dr. Schleiden, Nordhausen, 1857). Poor Schleiden! Unjustly persecuted! Have I completely misunderstood, or have you not boldly and unreservedly attacked the materialists with their "Tertian proofs" in Westermann's Illustrated Monthly Magazine? Have you not shown that they unjustly rely on the results of natural research to substantiate their claims, and that this latter has to do with bodies, never with the spirit!? "Oh, do not shake your bloody locks against me," you cry. Could you not say to your terrible opponent with Macbeth, "Thou canst not say I did it!"? Of course, it will avail you little! In the eyes of the "righteous," you are no better than the lowest one from the quagmire of materialism and will be — dreadful! — lying before them!

But what is it actually about? Reader questions, and what does Mr. Frank have to reproach Mr. Schleiden for! Well, it's a very simple matter. When Mr. Westermann in Braunschweig last year had the idea of elevating the intelligence in Germany to an ever higher level through his "Illustrated Monthly Journals," Mr. Schleiden, who has fertilized so many scientific fields with his ideas, did not hesitate to express his opinion on the burning question of the day, the "Materialism," in these pages, and in the name of what he calls "orthodox" natural science, to repel the attacks of philosophers and theologians on one hand and materialists on the other hand, pushing them back into their respective territories. In doing so, he made the remarkable, albeit contrasting discovery with all the experiences of modern times, that the natural sciences have absolutely nothing to do with the subjects of philosophy and the mind, and they only concern themselves with the material world! "All these fields," it says literally in one place, "move in the mental life of man, and that is not touched by the natural sciences!" "Truly, it is so, he has written it," and whoever does not believe it may read it themselves on page 42 in the October issue of the year 1856. And once he has read that passage, he may confidently put the book down, for the rest are just variations on this one theme, interspersed with a multitude of the sharpest attacks, sometimes against philosophers, sometimes against materialists, sometimes against everyone and everything. Phrases like "madhouse babble," "absolute impotence," "brutal ignorance" are as familiar to Mr. Schleiden as to other writers who do not stand on the same level as him, the use of the article or the word "and"; and only three persons escape empty-handed from this general condemnation, namely Newton, Kant, and Schleiden. If, according to an old saying, it is possible for "wisdom to be eaten with spoons," we are sure that Mr. Schleiden must have found himself in this pleasant case. His wisdom is so boundless that nothing else can exist besides it, and his time and its intellectual currents in him not only have an instructive but also a punitive teacher.

But enough for now about Mr. Schleiden and his article! It is not important enough to be discussed at length, and the fundamental view expressed therein contradicts so much of what currently captivates the interest of contemporaries most vividly that a refutation of it from the standpoint of free or non-"orthodox" natural science may seem unnecessary. Moreover, it seems to have received the least attention in those circles it was closest to, while strangely arousing the greatest dissatisfaction precisely where it should have elicited the most satisfaction. Because if Mr. Schleiden was right, the whole movement would be undermined, and the prevailing mysticism in the realms of the humanities would have nothing more to fear from the natural sciences and their liberating influences on general education. However, Mr. Schleiden's standpoint is so untenable that not even those to whom it is supposed to be so pleasing and whose concessions to their desires are deemed too minimal want to share it. They, too, assert, in contradiction to the natural scientist himself, the intimate connection of the natural sciences with the entire intellectual life of humanity. They want either a struggle or unconditional submission of these sciences to the authority of revealed religion. To them, Schleiden is not just a materialist but any natural scientist working in accordance with modern tendencies—a person making unjustified pretensions. In their view, the idolatry and worship of materialism cannot be countered with reasons from logic or natural science but only through "religious science and religious life," through the "sanctification of time in the spirit of Christianity," and with the assistance of an imminent Prophet Elijah who will call down fire from the Lord onto the altar of today's scoffers, consuming their burnt offerings of wood, stones, and earth, and licking up the water in the trench (1 Kings 18:38); (in Frank's cited writing, page 7).

"Well roared, lion!" That can be heard! That is a standpoint that one can respect, as it is a standpoint of firm, unshakable belief in revealed religion and its eternal truth, against which no science, no research of the human mind can stand, and to which one must blindly submit. Even if, scientifically considered, this standpoint contains a bold and narrow denial of all, even the most proven facts and principles of the exact natural sciences — at least it shows character, conviction, and that open honesty which does not seek to patch up something in the field of natural research through theological backdoor maneuvers but openly acknowledges existing contradictions and demands a total reform of hostile science in a religious spirit. And since Mr. Frank represents not only himself and his personal opinion but also a large and currently influential religious party in many places; since he derives his philosophical standpoints, if they can be called philosophical at all, not from himself but from the currently widespread religious philosophy of Baader and its school; and finally, since his entire writing sheds the brightest spotlights on the now much-discussed relationship between theology and natural science everywhere, it is worth the effort to briefly outline the basic features of his views here again. As far as the author could gather them from a cursory, more overview-oriented reading — for he could neither muster the courage nor the leisure for more — they will be communicated below, albeit in the most general outlines and in compressed brevity.

First and foremost, Mr. Franz vehemently protests against any separation of theology and natural science, declaring that religious science will under no circumstances accept Mr. Schleiden's proposal for mediation. Frank also states that natural science itself would be very narrow-minded if it were to confine its domain in the manner attempted by Schleiden; it must concern itself with more than just the investigation of the material world and is in a living connection with all sciences. Schleiden's vehement attacks against those with different views

are only signs of his own weakness, and his assertion that the true naturalist is neither a proponent nor an opponent of materialism is merely an expression of personal arrogance, believing to have taken science under a general lease. The debate about materialism is not as confused and ridiculous as Mr. Schleiden believes; on the contrary, it involves very specific and important contradictions and fundamental positions. Materialism is not the fruit of science but the result of aversion to the religious spirit that has unwittingly seized our corrupt time. Our entire present-day existence has a materialistic tendency as a complete reversal of the religious spirit, and the emerging struggle against materialism is a revival of this spirit, a battle between Christ and Belial. This decline of the religious spirit can only be countered by religion itself; it is the only bond that holds all sciences together, and all must be under its rule. Specifically regarding the natural sciences, they have suffered the most under the decline of the religious spirit, especially physics, which has stripped itself of its deeper religious content and subjected everything to the rule of natural laws.

The assertion, however, that the natural laws are sufficient for explaining the material world is the first and unjustified pretension of the exact natural sciences, which must be rejected by religion. Further pretension includes everything that contemporary natural science claims about the existence of atoms, the indestructibility of matter, the validity of natural laws, the nature of the heavens, and so on and so forth. Chemistry understands nothing about matter and nature. Smoking substances consume themselves in the air, thereby proving the destructibility of matter! Something entirely different happens in chemical experiments than in nature; therefore, chemistry is entirely incapable of demonstrating the immortality of matter or the indestructibility of material, which is nothing more than an "empty doctrinal fiction."

The so-called natural laws do not exist; they are only thoughts, nothing real. Sensory perception is not a true reality at all; the only thing possessing immediate reality of existence is the spirit. Newtonian physics is false, just as the mathematical approach to nature is entirely erroneous. Mathematics has caused confusion in physics and deprived it of its independence; it has turned the profound mystique of the heavens into a flat field, where it stretches out the measuring chain of its mathematical formulas, and so on. In short, the entire current field of natural science, based on the prevailing materialistic direction, has fallen into the delusion of materialism; a curse has befallen it! What is currently called exact, mathematically-based natural science is nothing more than exact materialism itself; all the foundations of this so-called exact science are false and must be overturned. The sole symbol of true natural science must henceforth be: "I believe in God the Father, the Almighty Creator of Heaven and Earth." Natural science has a solid connection with religion, and only religious natural science is the only true and genuine one, just as philosophy must also henceforth be religious. Jacob Boehme and Franz Baader are the authorities of this religious philosophy.

Finally, Mr. Franz plays his main trump card in a last chapter directed against the claims of astronomy. According to him, astronomy and theology find themselves in an unresolved and, according to modern scientific principles, insoluble difference, specifically due to the Copernican heliocentric system. This entire system is deemed incorrect, making modern astronomy the true home of materialism. It is entirely contrary to scripture that the Earth is just a star like other stars, orbiting the sun, and this false doctrine only arises because astronomy has been corrupted and de-spiritualized by mathematics. The Earth does not revolve as a star around the sun; on the contrary, it is the center and main purpose of the

world. This so-called geocentric system is the only correct one, and the assertion that celestial bodies are world bodies like the Earth is one of the most nonsensical assumptions that have ever existed. The Earth is solid and a dark body, while the stars are luminous celestial lights. The entire modern astronomy is based on a soulless mechanism, and anyone who believes in it is a materialist. Not only individual natural scientists but all who adhere to the new and erroneous direction of scientific research are nothing more than materialists.

These, in short, are the learned views of Mr. A. Frank, Doctor of Theology, Superintendent, and Senior Pastor of St. Jakobi in Sangerhausen, drawn from the religious-philosophical school of Messrs. Baader, Hofmann, etc., who are regarded by their numerous followers as great philosophers and scholars! Any commentary on this is unnecessary and could only impair the drastic impact of these expositions on the reader. Undoubtedly, a series of the most interesting considerations could be connected to them, shedding very bright lights on the relationship between theology and natural science, as well as on the wishes and hopes, but also on the fears of the currently prevailing theological direction and church faction. It could perhaps be demonstrated from them what a high and important task, under such circumstances, the natural sciences have become in the general struggle against ignorance and obscurity, and how unjust it is for those who seek to break the spearhead of such a battle and to hinder the necessary influence of a scientific, systematically ordered knowledge of nature on our further intellectual development. However, Mr. Frank's opinions are so open and unrestrained, and comment on themselves so much, that we can confidently leave the consideration of all these reflections to the thoughtful reflection of our readers. Mr. Schleiden and those who might be inclined to agree with him in his opinion may take an example from Mr. Frank and realize the false position one is forced into by assertions like Schleiden's in relation to his own science and the spirit of his time. Quite the opposite of these claims, one can rather say that one of the deepest divisions afflicting our time is to be found in the hitherto irreconcilable opposition between religious and scientific education. The same thought is expressed by a more recent writer who has especially focused on this dichotomy ("A Thousand Voices of True Religion Against the Church," Gotha, 1860) with the words: "A unity of natural studies with religious and scientific education is an essential condition for the humanity and civilization of our time, and in the absence of this unity lies the cause of all abnormal directions in science and life, the cause of all divisions in the church. The establishment of an organic unity of natural history with religious and scientific education is therefore the main task of humanity and civilization in our time."

8. Earth and Eternity

(The natural history of the earth as a revolving developmental course in contrast to the unnatural geology of revolutions and catastrophes. By H. G. O. Volger. Frankfurt am Main. Meidinger Son and Co.)

(1857)

So Bolger begins in the preliminary consideration

Nothing in the world

for his remarkable book, intended to put an end to belief in geological revolutions, itself aiming to bring about a revolution in science and in all our previous views on the past of the earth and its inhabitants — Nothing in the world has a beginning or an end, although to our short-sighted understanding, nothing seems to be without a beginning or end. We do not see the essence but only the phenomena of things, and thereby believe in generation and destruction, in birth and death, while the reality knows nothing of all this but is an endless, circular chain without a beginning or end, unified, equal, and undisturbed by the colorful changes of phenomena. Nowhere is this truth more apparent than in the history of the earth, which is actually and unjustly called the history of the earth, as it is nothing more than a history of the Earth's surface. We only know the outermost thin layer of the Earth, but from it, we decipher a history with endless periods, with eternities. Nowhere in this history do we come across events that are different from those still occurring today, and "none of the circumstances accessible to our observation allows us to assume that the chain of phenomena presented by the Earth's surface ever had a beginning or will ever have an end." (Page 15.)

Volger begins, before delving into his actual topic, with an analysis of the well-known Laplacean theory of the origin of our planetary system and a description of the state before the beginning of the world surrounding us today. This theory, whose inventor is generally considered to be the Frenchman Laplace, was actually formulated much earlier by the German philosopher Kant in his "General Natural History of the Heavens" in 1755 and owes its origin to the Greek philosophers Leucippus, Democritus, and Epicurus. These philosophers had already assumed an original general dispersion of the primordial substance of the Earth and all celestial bodies, viewing them as arising through swirling revolutions and chance. The ancient Greek thinkers, particularly the Pythagoreans, also had accurate views on the celestial order of celestial bodies, as taught by astronomy today, until these were lost again during the Middle Ages and under the influence of Christianity. It was only Copernicus (1543), Kepler, and Newton who, despite ongoing persecutions endured by their views through the Church, brought the truth to light anew.

The Kant-Laplace theory is well-known. The cause of the formation of celestial bodies must have been a general vortex motion generated by contraction and repulsion in the "primordial nebula" from west to east. Volger considers it possible that the current condensation may eventually be followed by a dissolution and dispersal of the mass of celestial bodies, and that in the scattered mass, similar processes may take place as before. Indeed, there are some astronomical observations that make it probable that celestial bodies and celestial systems are subject to a cycle of birth, decay, and new formation, just like all individual entities in nature, albeit within vast and unimaginable periods of time. Thus, we encounter once again the one comprehensive law of the eternal natural cycle, in which nothing individual persists, and only

the whole or the eternal matter is indestructible, unchangeable, without beginning and without end! What remarkable analogies this great law presents in all the known phenomena of nature, life, and history when we quickly survey the realms of our knowledge! Not only every individual entity, every stone, crystal, plant, animal, human, and celestial body has a rising and falling existence, a birth and a death, a youth and an old age, but also every species, system, gender, people, history, and opinion are subject to the same unexceptional law. To arise, exist for a while, and then perish, making way for another but similar existence, is the shared fate of all that has come into being, and neither the mayfly nor the celestial body living for billions of years, neither the history of individuals nor that of humanity will be an exception to it! But let us leave this rapid flight of imagination to return to the Earth, from which Volger has so many remarkable things to tell, and to revisit its early youth; for it too will age eventually and, along with everything on it, return to the eternal womb of existence to supply the substance for new and youthful formations sprouting from its decaying body.

From the way in which the condensation of substances must have occurred during the formation of the world, Volger believes he is entitled to conclude that every celestial body must be a hollow sphere—including the Earth. According to the law of gravity, the density of substances must increase towards the interior of the solid mass, both from the outer and inner boundaries. On the Earth's surface, the same principle applies; at the bottom is the land, above it is the lighter water, and above that, the even lighter air. The air itself becomes thinner the higher it is. In the earliest states of the Earth, this relationship may have been much simpler and clearer, with the sea uniformly covering the land. Direct observation provides little or no information about the increasing density of the Earth's mass towards the interior since the Earth itself is only explored by us in infinitely shallow depths. However, for astronomical reasons, it is certain that the density of the Earth's interior must be much greater than on the surface. We cannot make any statements about the size of the cavity inside; however, according to Volger, it is likely that there is a similar relationship regarding the increase in density from the inside, as on the outer surface inhabited by us. There, too, there will likely be water and air, and perhaps even light and warmth!

As for the warmth within the Earth, Volger, in contradiction to all previously accepted geological theories, emphatically rejects the assumption that the Earth evolved from a former molten state and that it now represents a glowing fireball with a thin solidified crust. He explains that we have no knowledge of the heat conditions within the Earth, and nothing justifies us in extrapolating from the known increase in temperature at the Earth's surface to its interior. It might be possible, he states, that a small liquid core exists within, but it is impossible for the Earth to be a molten mass with a thin solidified crust. Perhaps it is cool all the way to its core. However, the acceptance or rejection of this molten theory has no significance for the developmental conditions of the Earth. Even without that molten state, the Earth could not have evolved differently than it has.

In the third or main section, titled "Documents on the History of the Earth," the author enters the actual domain of geology or earth science. What do we find on the ground we live on? he asks, and the answer is: graves, nothing but graves! The author then provides a vivid and enthusiastic depiction of all the wonders and peculiarities revealed by the examination of rocks through the eye of science. On the highest Alps, the rocks are teeming with the remains of ancient sea creatures. In the lignite beds of Salzhausen, well-preserved clusters and remnants of plants not native to present-day Hesse are discovered. There are tree trunks that

have reached an age of three and a half thousand years! In the heart of Germany, there were once seas and volcanoes, and the region might have looked like the area near the Mediterranean Sea near Vesuvius does now. All our layers of the Earth unmistakably show that they must have been formed as sedimentary deposits from bodies of water, rightly bearing the name "strata." Many of these layers still lie completely water-tight and in their original position today; however, more frequently, this position has changed over time, and the "strata" have undergone various displacements. Even the ground we consider so firmly grounded, like everything in nature, has no firmness, no rest, but is subject to continuous, albeit often subtle changes, uplifts, depressions, and tremors from earthquakes, etc. Some coastal states continually sink into the sea, while others rise persistently from it, for which numerous examples exist. The same applies to the mainland and mountains, where the frequent voluntary collapse of old buildings bears witness to a continuous movement of the ground. Finally, countless earthquakes, without which not a single day passes, continuously contribute to changing the Earth's surface. The same areas of this surface sink at this period and rise again at another, etc., etc. — A subsequent presentation of the sequence of layers acquaints us with the fossil-free primordial rock, followed by the transition range, the coal mountain range, the copper shale mountain range, the rock salt mountain range, the Jura mountain range, the chalk mountain range, the molasse mountain range, and finally, the new formations. Volger calls this classification simpler and better than the old one, derived from false ideas about the Earth's history, into primary, secondary, etc., mountains with subdivisions. Volger calculates the thickness of the layered soil of the Earth's crust to be at least one mile. All these layers are formed under conditions that have never been different from today; there have never been other forces, other laws in the history of the Earth! What is now called primordial rock was once a new formation and in no other state than our current new formations, which will themselves be primordial rock one day. The relative age of the layers is determined, as is well known, by their organic inclusions, and the diversity of these inclusions, as well as the separation of the individual layers, gave rise to the thought that the Earth had once experienced sudden violent catastrophes and upheavals. None of this is true. Volger expresses the interesting assumption that there may also be layers under the primordial rock containing the same as those known to us and organic remains. He also claims that the primordial rock itself may have once enclosed animals and plants whose remains, due to the deep and penetrating changes that this rock has undergone over endless periods of time, are no longer recognizable to us. Naturally, this would result in the infinitely important and paradigm-shifting conclusion that life on Earth, as far as our knowledge extends, had no beginning.

Only changes in forms of life, not in life itself, are known to us, and our astonished gaze encounters, wherever it may turn, only eternities!

That the heat within the Earth is more significant in its depth than at its surface, albeit with varied and irregular increase, has been mentioned earlier, and the question now arises about its origin, about its sources. Volger designates these sources as condensation, movement, and substance transformation.

The nature of the heat in the greatest depth is unknown to us. Hot springs and volcanoes prove that, at least in specific locations, the Earth's heat must be greatly increased, but there is no justification for assuming a general and continuous increase in heat towards the interior until it reaches a molten state. If the Earth continuously generates heat within its core, it also

loses it continually to the outside, but in the same measure it loses, it also generates. Therefore, continual cooling of the Earth is not to be considered, and as it is now, so it has been eternally, and so it will be eternally! The entire history of the Earth consists of eternal construction and eternal destruction. Water is known to relentlessly work on the destruction of mountains. The hardest granite is broken and crumbled by water that enters its fissures and freezes within. The continuous contribution of glaciers to this destructive work is equally well-known, especially observed in the Swiss Alps, which must have been much higher in the past. The so-called weathering of rocks is a consequence of rain showers enriched with carbon dioxide. Equally significant is the mechanical force and efficacy of rivers and streams, and the masses of material they continuously carry away are immense. In given periods, they would erode and level the entire Earth's surface if similar or equivalent forces were not actively involved in continual construction on the other side. Therefore, the immense and powerful lie not in the grand, noticeable activities of nature, but in the unnoticed dust that the stream carries past us every day. No rock is impervious to the force of water; even in basalt and flint, one can find small water-filled cavities formed by the melting of the water contained in the rock. In mines, water flows from all walls, hence the apt name "mountain sweat." Water is constantly busy washing away, leaching, and extracting its soluble components from a significant part of the soil. This is particularly true for salt- and lime-containing soil layers, to the extent that significant soil collapses often occur afterward. These collapses fill with the water of streams or rivers, forming lakes. All the lakes in Switzerland have originated from the dissolution of massive limestone layers over millions and millions of years. This continual washing away and subsidence of the soil is so significant that entire stretches of land can sink beneath the seabed.

Landslides and earthquakes are also nothing more than consequences of the described leaching of the soil. Earthquakes occur when cavities in the interior of the soil, created by this leaching, suddenly collapse. The idea that earthquakes could arise from water vapor is entirely impossible; the water would not be able to penetrate to the inner core of heat if it existed. Similarly, volcanoes would not be able to transport any part of this content to the surface since it would have long solidified on this vast and narrow path. Volcanoes do not belong to the Earth's interior but only to the stratified structure of the Earth's surface, and their highest temperatures are likely achieved at the moment of eruption due to friction, burning gases, etc. As continuous destruction of the Earth's surface occurs through water, it also works with no less force on its perpetual rejuvenation on the other side. Every lake without drainage must become salty over time, and this is why the sea, the Earth's largest lake, is also salty. This salt, along with the earth particles brought by rivers, continuously deposits on the seabed, forming the layers of the Earth. Volger calculates that it would have taken 648 million years for the deposition of the known stratified structure of the Earth—an estimate that, according to his opinion, is undoubtedly still much too low. Nature is bound by space and time only in our perception, not in the essence of things. Every destruction gives rise to new formation, just as every new formation requires prior destruction; nature is without beginning and without end.

The author further mentions how the air contributes to the formation of the Earth's crust, as the wind continuously carries dust and soil from the sea, which settle to the ground and become part of the stratification. A more significant factor in Earth's formation is the so-called sedimentation by rivers, capable of lifting large land areas from the sea floor. The

Lombard plain, Holland, and Belgium are examples of sedimented land, and the Rhine used to flow into the sea near Cologne. Similarly, the Nile and the Mississippi are responsible for significant sedimentation.

However, the most powerful factor in soil formation may lie in the slow but continuous activity of the plant and animal world. While the insoluble substances brought to the sea from the water constantly sink to the bottom on their own, plants and animals extract soluble components from the sea. Initially, they affect the water by extracting carbon dioxide from it, depriving it of the ability to keep dissolved lime, causing it to precipitate to the ground. But not only in this way, but also in many other ways, as Volger shares with us in highly interesting details, the organisms living in the sea, especially those of the smallest and most inconspicuous kind, are engaged in the formation of the Earth's crust. Thus, nature achieves, as everywhere, that the great is only accomplished through the small and inconspicuous. The layers formed at the bottom of bodies of water through the mediation of animals and plants far exceed in thickness those formed solely under the influence of gravity. As we have seen, the sea engulfs mountains, but small, barely visible animals and plants rebuild the mountains and rocks in the same place, establishing the continents of the future.

The most crucial question in such a direction of geology is, of course, that concerning the origin of the irregularities of the Earth's surface or the mountains, a question that has traditionally been answered through the reaction of the molten core of the Earth against its solidifying crust. According to Volger, many irregularities undoubtedly arise, as mentioned earlier, through mere depressions, but these alone are not sufficient to explain all. The primary cause for the formation of mountains is rather the stretching and folding of individual layers of the Earth under the pressure of the masses deposited on them, accompanied by an internal rearrangement and crystallization with the dragging of related substances within the layers themselves. In each layer of rock, countless small crystals gradually form, continually growing and, through their expansion, slowly pushing the layers apart and upward. In general, the layers of the Earth undergo a continuous internal transformation, the results of which become more striking the deeper a layer lies, and there is also a never-resting metabolism in the realm of rocks, which was previously mistakenly believed to be limited to the organic world. Through moistening with dissolved lime and carbonaceous earth, loose soil gradually turns into solid rock, and an ongoing tendency towards crystallization continuously alters the Earth's layers in a significant manner. In the newly formed layers, the life forms of plants and animals prevail, while in the primitive rocks, crystals dominate. The primary rocks and granites did not originate from the cooling of a molten mass but rather from the crystalline transformation of sequences of layers that were once new formations, and this process has occurred uniformly across the Earth. Not only a continual morphological but also a continual material change of rocks takes place, with the most potent agents being two acids that curiously are known as the two weakest acids in nature—carbonic and silicic acid. Hence, there is an ongoing ascent and descent of substances with incessant alternation, and the equilibrium between the erosion and elevation of the Earth's surface is established by the same forces and processes. Nature eternally dies and rejuvenates; the world rises and falls eternally. In the cycle of matter, which is never absent, rests the ultimate secret of all existence.

The last section of Volger's book, and, if possible, the earlier sections surpassing in interest, deals with the history of the extinct plant and animal world, without which the term "earth

formation" would have been just as impossible as the existence of that world itself without the ground on which it developed. All our previous views related to this matter have been deeply shaken since the crystalline rocks are now regarded as what they truly are: transformed new formations, and since the eternal cycle between crystalline rocks and new formations has been grasped. The conclusion that there was no organic life during the time of the crystalline rocks is no longer possible. The crystalline rocks themselves could not have formed without plants and animals because without lime, there is no feldspar or granite (since the chemical process by which feldspar is formed necessarily requires the presence of lime), and without plants and animals, there is no lime. All lime is a product of the organic world. As long as the above-described cycle of the stratified building persisted, plants and animals also lived. However, just as we know nothing about the beginning of the strata, we know nothing about the beginning of the organic world. The old notion that it had a beginning, Volger calls a "charcoal belief." It is a fact that animal species still become extinct today, and according to the author, this fact leaves no doubt about the past flourishing of species. Species have not existed for eternity, as Czolbe assumes, but they come and go, like everything on Earth. The plant and animal world is in a continuous gradual change through the extinction of previous species and the emergence of new ones. However, there is a certain constancy in the realm of the smallest life or in some similar species of plants and animals that have been active in the construction of the earth's layers at all times. Only the outward appearance has misled us into believing that periodic new creations corresponding to the formation of layers have taken place. This is not the case, and there have never been separate divisions in the history of the Earth. Nature knows no periods, only continuous development. Organic forms have never been larger or more extraordinary than today; only their size or extraordinariness has manifested in different species than today. Also, the external and climatic conditions of the Earth, to which so much influence on the organic development of the past was attributed, have never been essentially different than today; never was a general uniform warmth spread over the Earth; not even a more extensive water covering than today may have occurred. Many errors about the organic ancient world and its significance are due to the great inadequacy of our paleontological knowledge. The old idea of an ascending developmental history of the organic world must be abandoned. Lizards have been found in the primary, and mammals and birds in the secondary mountains; new species are constantly being discovered, and even in the transition mountains, a lizard was recently found. The idea of later unfolding compounded primordial creatures is also untenable. Compound natures still exist today. Everywhere, new discoveries contradict the old view of things and the belief in a continuous, ascending sequence and development. Higher groups appear before lower ones, and while progress is sometimes noticeable, on the other hand, regressions are observed. Higher forms decrease in number over time, while lower ones increase; in others, irregular increases and decreases are noticed. Volger concludes with the admission that the law of organic form changes has not yet been found!

In a concluding chapter titled "Afterthoughts," Volger suggests that a continuous developmental course of the Earth and its generations may be assumed, but only for individual periods, not for the grand entirety. In this, we perceive only an eternal cycle, an infinite recurrence, an endless repetition! The beginning of the organic world is not before us in the transition period. What was there before? Every natural kind, whether organic or inorganic, seems to have its own specific longer or shorter cycle, after which it makes way for another kind upon completion. But as the kinds return, they show that there is nothing

new under the sun and that everything that comes has already been: "Infinite!" "Eternal!" These are the words that nature calls out to us from all sides, even though our feeble intellect, bound by space and time, may not fully grasp the associated concepts!

Stand, you sail in vain—before you, Infinity!

Stand, you sail in vain, pilgrim, even behind you!

Lower down, eagle-thought, your plumage.

Bold navigator, imagination,

Cast a fearless anchor here!

This is a brief presentation of the main points of a book, the reading of which provides much to ponder and feel, requiring the critic to reflect on where to begin describing their own thoughts and emotions. For any of our readers familiar, even superficially, with the previous course and content of geological theories, it cannot have escaped notice how significant and irreconcilable Volger's claims stand in contradiction to these theories. They threaten to overturn everything previously considered true in this part of the scientific field. The origin of the Earth from a molten mass, the former uniform temperature of the Earth's surface, the molten core, the solidifying crust, the formation of mountains through a reaction of the Earth's interior against the exterior, the explanation of earthquakes, volcanoes, and hot springs from the same relationship, the formation of crystalline igneous rocks from melted and cooling masses, the strict contrast between crystalline and stratified rocks, the beginning of the organic world on Earth, and the ascending sequence of organic genera—all these and many similar concepts were, despite the growing tendency to understand the Earth's past as an unfolded present, widely accepted and hardly disputed geological doctrines. Volger's direction seeks to put an end to all these beliefs, not only in geology but also in the multitude of general and philosophical opinions that have been built upon them. However, all such conclusions are premature until it is established whether and to what extent Volger's direction will gain scientific validity and whether it will be successfully contested by its undoubtedly numerous scientific opponents. Until then, one can only say that Volger's presentation makes an incredibly convincing impression on the unbiased reader familiar with scientific concepts. This impression is rooted in the fact that Volger's theory, which closely approaches the old and supposedly buried Neptunism and declares war on the prevailing Plutonism, only invokes the simplest, most natural processes accessible to our daily observation to explain the Earth's history. It is an old and fundamental principle of natural science that remote and hypothetical causes should not be invoked to explain natural phenomena as long as more proximate causes with examples found in reality are sufficient for explanation. The plutonic theory is evidently nothing more than a hypothesis, and a rather daring one at that. No one has seen the Earth in a fiery or molten state, but it was assumed because this assumption seemed to satisfactorily explain all phenomena on the Earth's surface. Volger's theory solves the puzzle in a simpler, less forced, more tangible, and natural way; it explains everything from processes and relationships that are continuously active in the same way before our eyes in shaping the landscape. That this theory encompasses the work of Earth's formation over endless periods cannot be counted against it; on the contrary, the slow action of millennia has far more internal probability than sudden or violent catastrophes and upheavals. Assuming that the scientific evidence on which Volger relies is correct and applicable to the present

circumstances, and assuming that his theory is truly capable of explaining what it intends to explain, one can only wish it success from the standpoint of natural science, no matter how loud and vehement the lamentation of those who perceive it as a new support for disbelief that denies everything higher, the "gray, dead theory of materialism."

Contradictory may be found in Volger's line of thought, as he introduces in his book, which aims to prove that the beginning of the Earth has never been different from its end, the Kant-Laplace theory of the Earth's development and expresses his agreement with it. Although he attempts to explain this point on page 16, the explanation is not sufficient, and the concept of a "circling eternity in the history of the Earth" is incompatible with the origin of this celestial body from a primordial nebula. However, Volger could have provided a different explanation, which, as the author hardly doubts, would have temporarily satisfied any thoughtful reader. He could have said: If astronomy and, in harmony with it, many other considerations drawn from the natural sciences make it probable, if not certain, that solar systems and celestial bodies also have a temperate-individual existence, accompanied by birth, existence, and decay, just like every known natural individual existence to us so far; if it can be proven that our solar system, and thus our Earth, must have originated and consequently must eventually face a finite decline; if all this indicates that our planet and its inhabitants must have undergone a specific, natural course of development up to now. So the new chemical-physical geology can, in view of these experiences, only say that, on its research field up to now, it has not yet succeeded in encountering the point where the past of geological development distinctly connects with its present—which is, however, less surprising considering that our knowledge of the Earth's crust is currently limited to its very thin outermost layer. Perhaps we may expect more detailed insights from later research on this matter; perhaps we will later realize that even within what we can recognize, there exists a subtle and, at first glance, invisible transformation, which, with the help of immeasurable time spans, leads the Earth from age to age and eventually to its demise. For such a gradual course of development in the history of the Earth and its inhabitants, there are generally so many reasons and facts supporting Volger's objection, and so many researchers in various scientific fields acknowledge it, that the Volgerian theory, if it is to gain lasting recognition, will likely need to find some way to reconcile itself with it. Ultimately, however, the fact will always prevail, which, although often ambiguous, remains the ultimate guide in our thinking in science and philosophy. The fact rules! "A single fact," as Frauenstädt says (Materialism, etc., Leipzig 1856), "is capable of overthrowing the systems of entire centuries and turning whole libraries into waste paper." Against facts, no resistance or protest helps, etc., etc. And if scientific research were to discover a single fact today that would overturn all our previously held general opinions, one could not do otherwise than quietly accept it, and the honest thinker would have to attempt to start his thought process anew. Certainly, this resignation carries the disadvantage that the opinions gained in this way are subject to ongoing change and fluctuation depending on the state of empirical research—a disadvantage that the "systems" derived from philosophical thought do not possess or at least not to the same extent. But fundamentally, this disadvantage is probably only apparent; it necessarily follows from the natural uncertainty of human knowledge and can be considered more as a touchstone of a genuine, experiential, and truth-oriented philosophy. There can be no universally saving philosophy just as there is no universally saving church. Perhaps the "Philosophy of the Future" will set itself no other task than to record the general results obtained through the progress of individual sciences each time and either summarize them from a general

perspective or derive general principles touching on philosophical interests from them. It will then be like a soft garment that clings to the body of the sciences, allowing free movement for every muscle twitch and every vein swelling but no longer the iron chainmail that once constricted and crushed the free limbs of science. Each individual discipline of human knowledge will move freely and unhindered, seeing in philosophy not an enemy or despot but a friend and servant, in whose brilliance it rediscovers its own glory.

Such considerations could be stimulated by the Volger's book, as it seeks to introduce a revolution based on factual research into a science that has such close and almost immediate relevance to some of the most important general questions that can occupy the human mind, challenging many beloved opinions. Although this revolution may not be entirely new, as it may seem, it has essentially been prepared through the works of the famous Bishop and Volger's entire direction is nothing more than the purest and most decisive expression of the scientific endeavor initially initiated by the Englishman Lyell: to remove all romantic elements from the history of the Earth and explain this history purely through such processes and natural forces as we still see actively at work today in the construction of the Earth's crust before our eyes. However, the extent to which his extensive anti-plutonism can be justified remains to be seen in the future. For now, one may be content with the gain that each new direction in the scientific exploration of Earth's history pushes the unnatural and legendary further into the distance. "The ancient myths fade away, and the isolation in natural phenomena again succumbs to the insight that a few great natural laws bind and govern the entire diversity of the universe." (Girard.)

9. On and about Schopenhauer.

(1859)

"The question of whether a philosophy is atheistic sounds as strange to a philosopher as the question of whether a triangle is green or red sounds to a mathematician."

A. Schopenhauer.

Schopenhauer's philosophy has experienced a peculiar fate. Born more than 40 years ago and entering the world, it remained almost entirely unnoticed amid the clamor of philosophical giants in the first half of this century in Germany. It was only a voice from abroad in 1853, in the English Westminster Review, that primarily prompted attention to a man portrayed in that article as a martyr of truth and as one oppressed by academic philosophy. Dr. J. Frauenstädt's letters on Schopenhauer's philosophy then aimed to make its understanding possible for a larger audience. Since then, Schopenhauer's views have gained a small but seemingly enthusiastic circle of followers, and interest in them appears to be increasing rather than diminishing. Regardless of their value or lack thereof, they certainly owe this in part to the philosophical perplexity into which we have fallen since the passing of the last philosophical "golden age." People have abandoned the old and yearn for something new without yet knowing precisely what it should entail. In such a state of mind, one grasps at everything, but preferably at a system that emerges with such a high degree of self-confidence, like Schopenhauer's, claiming to have finally found the core of truth. Certainly, there would have been much greater interest in it if Schopenhauer's writings were not written in a form that is not easily accessible to general understanding, and if his system itself did not present such a peculiar and, in addition to his great confidence, a rather off-putting view for common sense, on which Schopenhauer is particularly critical. This view naturally took center stage in all evaluations of Schopenhauer's philosophy in books or journals and was usually accompanied by comments that led most readers to consider it unnecessary to familiarize themselves further with the details of such a system through the reading of its author. Indeed, if Schopenhauer's entire significance rested solely in the underlying idea of his system, the reader would have lost little by his neglect. However, Schopenhauer's interesting and significant aspects lie elsewhere than where he himself seeks his main strength, and the external aspects of his system weigh more heavily than the system itself. Not in his underlying idea, but in its execution, he demonstrates a philosophical genius and a wealth of knowledge that, if applied differently, might have made Schopenhauer the reformer of philosophy that our time so eagerly awaits. It is regrettable to see such philosophical power being consumed in the construction of a thought system that carries the germ of its downfall from its inception, and one wonders what it could have become if directed onto more correct paths. In such a case, we would likely find ourselves at a different point than where we stand, and we would not still be futilely attempting to digest the old leaven. But even as Schopenhauer is, our time can learn many things, especially for the current developmental crisis in philosophy, that make it worth the effort for the general public to get to know him in ways other than through mere condemnations of his system or through writings that themselves require a separate study. Moreover, if one or another of our readers is inspired to study Schopenhauer's works through the reading of this essay, we believe we can assure them in advance that they will not regret the time spent. The paths that an intellectual miner like Schopenhauer digs in the depths of the world of thoughts are remarkable and fruitful for those who peer into them, even if they deviate far from the main thoroughfare. Schopenhauer,

as an independent thinker seeking truth in his own way, has a deep and instinctive aversion to this thoroughfare, and considering our recent philosophical past, one must admit that this aversion has more than just a subjective basis. The manner in which Schopenhauer attacks his philosophical predecessors and contemporaries may disregard the rules of decency, but in substance, his opinion expressed many years ago when those men still enjoyed the highest esteem is now almost universally accepted. Besides this critical and negating attitude towards the philosophical past, Schopenhauer, despite the subjective-idealist origin of his system, shares many aspects with modern reformist efforts in philosophy. This alone should make his study worthwhile, even if it weren't as interesting in itself. If one takes the trouble to separate the true from the false in his philosophy as much as possible, Schopenhauer still has a significant influence on the course of our current philosophical development. An attempt of this kind is the purpose of the present essay, seeking to achieve a separation through a thoroughly sober critique primarily drawn from scientific experiences. In doing so, the reader will gain enough insight into the content of Schopenhauer's philosophy to form at least an approximate judgment. While Schopenhauer himself, should he come across this essay, would likely be dissatisfied, as his firm and fairly bluntly expressed opinion leans towards the belief that in 60 or 100 years, his system, as the only correct one, will dominate philosophy and life. *) Regardless of whether one might smirk at such a view, after reading him, one will comprehend Schopenhauer's high self-awareness and not dismiss it as mere vanity. Above all, he possesses the firm conviction, rooted entirely in his being, that he writes not for external advantages or in accordance with tradition but, like any true philosopher, earnestly and honestly seeks the complete and full truth. He possesses the irresistible urge of a true researcher for light and enlightenment, deeply scornful of any kind of "philosophical dishonesty" that unfortunately prevailed in Germany for so long. Playing with grand but ultimately empty words is utterly repugnant to him, even though he cannot entirely absolve himself of a flaw that has unfortunately ingrained itself like an incurable cancer into our German philosophy. His uncompromising stance against error and falsehood is expressed in the excellent words: "It follows that there can be no privileged or sanctioned errors; the thinker should attack them, even if humanity, like an ailing patient whose ulcer the doctor touches, loudly protests." "and his devotion to the truth in the powerful passage: 'The truth is not a harlot who throws herself at those who do not desire her; rather, she is such a reserved beauty that even someone who sacrifices everything for her cannot be certain of her favor.' If Schopenhauer were as keen and impartial in constructing his arguments as he is sharp and uncompromising in criticizing or negating empty words and pretences, then we might not have received a system of subjective idealism from him, but instead, a collection of truths that would likely carry much more weight than the supposed truth he claims to have found. Therefore, less emphasis on the system itself and more on the manner of its execution, as well as on his accompanying work, which, separated from the former, takes on a completely different light, will be the main focus of the following exposition."

To discover some fundamental principle from which all manifestations of the world forming and surrounding us can be sufficiently derived or explained has always been the endeavor of philosophy and philosophers. Schopenhauer recently finds this principle in something to which he assigns the peculiar name "Will." One must consider this designation as peculiar because it has never existed in a similar manner before and, in fact, contains nothing that could justify such usage. If one initially asks what is to be understood by the word "Will" and what has been understood by it so far, the physiologist, who is most competent in this regard,

answers that it denotes a specific expression of the so-called animal life— moreover, one relatively subordinate and on the same physiological level as the so-called sensation, which is not even present throughout the entire organic world and certainly not in the inorganic. As difficult as the strict differentiation between the animal and plant kingdoms has become due to the latest discoveries in natural science, this applies only to the simplest forms and the transitional forms mediating between the two natural realms. In the larger context, the presence or absence of a genuine manifestation of will always remains the surest distinguishing feature between an animal and a plant. Schopenhauer's attempts to demonstrate the existence of will in the plant world are as unsuccessful as those made at various times to seek the existence of a soul similar or related to animals in plants. The proof of will in the inorganic nature, attempted by Schopenhauer himself, is not to be conducted at all, except through expressions. One may twist and turn as much as one likes, but one will not be able to find a sustainable and logically convincing basis, comprehensible to common sense, that could lead someone to generalize and expand the restricted concept in the manner that Schopenhauer has done, making it the fundamental principle of all things. If one still does so, one immediately departs from the original concept from which one started, merely using the same word that arbitrarily signifies the unexplained by substituting it with another equally unexplained term. For Schopenhauer, the Will as he perceives it is no longer a will but an entirely different, higher, more general, and darker entity. By labelling it as will, it gains neither clarity nor significance. Schopenhauer could have just as well named it XYZ, and the unfortunate consequence for him would have been the substitution of the found belief with another sought one. Although Schopenhauer, despite his systematic entanglement, never completely loses the sense of what is truly true, he foresaw and attempted to eliminate such objections but not with success. Things that experience and simple understanding inherently reject with a "No" cannot be saved by the most subtle philosophical arguments. While they may evoke admiration for the cleverness and dialectics of their defender, they do not convince. Schopenhauer's attacks on common sense, which he himself often finds necessary to confront in other matters, are therefore only raising suspicion. Moreover, Schopenhauer is forced to explicitly admit that the concept of "Will" has a broader scope for him than it previously had. This concession is enough to portray the entire use of the word "Will" by him as an abuse. For where would we end up if every philosopher were allowed to arbitrarily expand words beyond the specific concepts they have become accustomed to associating with them and use them in a completely different or broader sense than linguistic usage allows? Babylonian confusion would be inevitable if wilfulness were placed on the throne, and that philosophical charlatanism, against which Schopenhauer himself fights so vehemently, would raise its head even more than before. One can less allow such a procedure for Schopenhauer, especially as he knows how to harshly criticize others for the same. He explicitly accuses Spinoza of misusing words to denote concepts that have a different name throughout the world, such as God for World, Right for Power, Will for Judgment, etc. Spinoza was partly compelled by external circumstances to do so, while Schopenhauer was in a position to call things by their true names. But even more than by elevating the will to the fundamental principle of the world, Schopenhauer deviates from the path of sober inquiry through the second main component of his system, or through the broader conception of the world as representation. According to him, since there is nothing real other than the will, and the visible world is only an objectification or embodiment of this will, we do not recognize this world as something external, but only as something within us or as our representation. We do

not know how to distinguish the object from the representation, but rather find that both are one and the same, as every object always and eternally presupposes a subject, and every object is only the representation of the subject. There is no object without a subject, and the world, as we know it, is not in itself but only exists in the representation of thinking beings. "The world is my representation" or a brain phenomenon. It hangs by a single thread, and this thread is the momentary consciousness in which it exists. According to Schopenhauer, the existence of the entire world depends on the first eye that opens in this world, even if it is that of an insect. "The sun," it is said, "requires an eye to shine." Therefore, the objective world exists only as a representation; if no one represented it, it would not exist. The simple and necessary consequence of such a view, which is compiled in its above representation from purely Schopenhauer's words, would be the denial of the reality of the external world. If Schopenhauer were to confess to this consequence, he would have done nothing more than express a paradox that occasionally repeats in philosophy as an outcome of the highest subjective idealism, requiring no serious refutation. However, Schopenhauer does not draw that consequence, thereby complicating the clear understanding of what he actually wants to convey. He explicitly acknowledges the reality of the external world, vehemently polemicizes against Fichte, whom he accuses of driving the object out of the subject, and goes so far as to label the denial of the reality of the external world as "theoretical egoism and madness." On the other hand, he battles against materialism, which, in his view, as the absolute opposite of Fichte, pushes the subject out of the object. He claims to stand in the middle, neither starting from the subject nor the object but from representation. If Schopenhauer, in this manner and by recognizing the reality of the external world, intended to convey nothing more than that this independently existing and autonomous external world needs to be subjectively recognized by the perceptions of thinking beings or that it must be reflected in a representation to be known, he would have stated a simple and natural truth that has never been seriously disputed by anyone to our knowledge. Such a statement would not serve as a fundamental element of a new philosophical system. However, Schopenhauer evidently wants to say more than this, as we have seen, by interpreting the real world, despite its acknowledged reality, into a specific relationship of dependence on the representation of thinking beings. "The sun needs an eye to shine." Nothing can be more repugnant to empirical research than such misuse of the subjective source of knowledge and such unnatural blending of the knower with the known. At every step, as natural science advances, it teaches us more clearly the complete independence of cosmic existence from the existence of living, somewhat parasitic formations generated here or there in its bosom. It shows how the world and nature, in their eternal and unalterable course, neither consider the existence of such beings nor depend on them. Even without them, the world would undoubtedly not reflect itself in a representation anywhere, yet it would and must still exist. Not only do we know that there are worlds that cannot be inhabited by any beings resembling us in any way, but also that our own abode, the Earth, likely existed for endless periods without any willing or imagining beings, and that, according to the recognized laws of nature, which are now also acknowledged for astronomical worlds, there must and will come a time when, following the general law of the periodicity of individual existence, they too will undergo their own decay and death, causing the beings living on them to perish, and their atoms to be scattered disorderly into space. Seeking to make the existence of the world dependent on the idea of those beings coincidentally present in it, in the face of such knowledge, can only be the result of a self-hurrying speculation. Although Schopenhauer is by no means unaware of these facts,

he futilely attempts to reconcile the presence of prehistoric and especially pre-human epochs, proven by natural science, with his theory. By separating the "world in itself" from the "world as representation," he tries to make the case plausible. He deems the entire earlier period, when no eye had yet opened, as inconceivable without conscious awareness, asserting that there wasn't even a time then, as per Kant (which will be discussed again), since time is only one of the a priori forms of consciousness. Nevertheless, Schopenhauer seems to have troubled his own conscience here, as with some of his other assertions. At least in "Parerga and Paralipomena" (Vol. 2) under the chapter "Similes, Parables, and Fables," there is a remarkable passage related to this, explicitly acknowledging the independence of cosmic existence from the representation of knowing beings, and serving as evidence for Schopenhauer's spirited language. "At that time," it says there, "when the Earth's surface still consisted of a uniform, flat granite crust and there was no predisposition for the emergence of anything living, one morning the sun rose." The goddess messenger Fris, who had just flown here on Juno's behalf, called out to the sun as she passed by: "Why bother rising? There's no eye to perceive you, and no Memnonian column to resonate!" The sun replied, "But I am the sun and rise because I am; let whoever can see me!" So, a sun that needs no keen eye to shine and no concept to reflect upon itself!! A sun that would exist even if no one imagined it! Furthermore, in the second volume of "Parerga and Paralipomena," Schopenhauer explicitly admits that natural processes must have existed before the onset of consciousness, yet he still believes that these processes outside of consciousness are nothing, and one cannot even think of them!! He claims that these processes did not have an existence in themselves, just like the present ones. One can only respond that since science believes it has demonstrated the existence of past geological epochs without living beings, these epochs have been thought, known, imagined countless times by humans, and even depicted on fairs and theaters. The moment when the world reflected itself for the first time in consciousness was irrelevant for them and existed only in the philosophical idea of Mr. Schopenhauer, as the development of animal and human consciousness must have been gradual and only gradually becoming clear. If Schopenhauer argues that he himself does not attach importance to that moment and only asserts that past and present periods ultimately always require our imagination to be recognized, or that it always requires a cognizing being for the objective world to become a representation, then nothing remains of his entire wisdom except, in our opinion, a very trivial truth that requires no explanation. However, this truth does anything but prove the dependency of the existence of the represented world on the representing one, as intended by Schopenhauer, and the opposite has been well-established by empirical science.

But the concept, as we have already seen in Schopenhauer, does not exhaust the entire existence; rather, according to him, the true and innermost essence of the world rests in a side entirely different from the concept or in the will; it is everything that the world is beyond the concept. The world as a concept is only an objectification of the will and its external side, while the will itself forms the inner side of existence, its foundation. Life, visible world, appearance is only a mirror of the will, which accompanies it like the body its shadow; in them, according to Schopenhauer's expression, the mirror of the will opens up, in which it recognizes itself, most profoundly in thinking humans.

This entire distinction, as well as the circle of ideas from which it has arisen, now finds its true origin and partial explanation in Kant's well-known distinction between the so-called appearance and the so-called thing-in-itself. Schopenhauer himself explains that his own

distinction is completely identical with it and only derived from different premises; furthermore, it necessitates a progress beyond Kant, yet entirely based on the foundation laid by him. Kant's appearance is identical to Schopenhauer's world as a concept, and the thing-in-itself is identified with the world as will. Characterized as a Kantian and a subjective idealist, Schopenhauer further explains that time, space, and causality are a priori, i.e., forms of our subjective cognition that are independent of all experience and lie within us before all experience. As Gruppe aptly notes, "he may well have more of school philosophy in himself than his rhetorical partisans are willing to admit." According to Kant and Schopenhauer, the essence of things is independent of the forms of our intellect, therefore inaccessible to our reflection. According to Kant, the essence of things is the thing-in-itself, according to Schopenhauer, it is the will. Both assume a diversity of the ideal and the real, asserting that the world has two entirely different sides, of which only one is accessible to our knowledge, while the other remains eternally hidden. The contradiction that became fatal for Kant's distinction must naturally also become so for Schopenhauer. Both, in accordance with their own theory, violently bridge the gap that separates them from the thing or the world in itself, using a method that closely resembles that by which Baron von Munchhausen pulled himself out of the swamp by his own hair. However, even from empirical perspectives, it cannot be denied that there is at least some truth to Kant's distinction. Still, Schopenhauer, through his new and strange names for the distinction, has deprived it of this advantage and not improved Kant but rather worsened him.

With these brief indications, it may now be enough about Schopenhauer's own system; in the face of modern science directed towards experience, it can only be considered as one of those speculative inventions of which Germany is so rich. Our readers will find more interest in Schopenhauer once we follow him into other areas not too directly connected with his system. Here, we will often encounter obscure ideas, but also very true and novel, and always intellectually rich views. Particularly in the way he judges the history of philosophy, we recognize the prejudice of his system but also the strong, deep spirit of a true philosopher, always keeping the grand and whole in mind. Profound insights and grand conceptions combine with extensive knowledge to impart some very noteworthy teachings to our age. Above all, Schopenhauer seeks to restore the due respect to the ancient Indian wisdom banished and misunderstood by Christian philosophy. It should be noted that Schopenhauer's own philosophical disposition shows a great sympathy with the melancholic and fatalistic worldview of the Indians, and that the latter seems to have had a considerable influence on his inner philosophical development; echoes of this kind recur throughout Schopenhauer's writings. In the famous Indian Prakriti, he finds his Will again and compares the state of a man permeated by his philosophy with that attributed by the Indians to one who has reached the highest Indian wisdom.

According to Schopenhauer, the first of all religions is the famous and sublime religion of Buddha, the great teacher of wisdom, which surpasses all other religions in inner content and the number of its followers. Schopenhauer particularly asserts that the ethics of the Hindus preach the famous principle of love, attributed primarily to Christianity, to a much higher degree. Compassion, charity, patience, repaying evil with good, chastity, asceticism, etc., are virtues that this ethics preaches out of love for themselves and not with regard to reward or punishment.

Both Greek and Christian wisdom originate from Indian sources, the latter through Egyptian mediation. Schopenhauer finds it very peculiar, therefore, that attempts are now made to do something good for the Indians through conversion, considering they have held religious beliefs since ancient times that surpass ours in depth and substance. It is strange that people believe they have something new to tell them with the Incarnation of Christ, especially when they themselves possess no less than nine incarnations of Vishnu. After an excellent depiction of the ancient Indian myth about punishment and reward, it is stated, at a point that will be particularly interesting to our readers at this moment: "Pythagoras and Plato, therefore, have embraced that non plus ultra of mythic representation, brought over from India or Egypt, revered, applied, etc. We, however, now send English clergymen and Moravian weavers to the Brahmins, out of pity, to instruct them in something better. But in India, our religions will never take root; the primal wisdom of mankind will not be displaced by the events in Galilee, etc." According to Schopenhauer, all conversion attempts by the English in India have failed and will always fail. In general, Schopenhauer, a strict and often fiercely critical commentator, finds the missionary zeal of the English, as well as their Jewish bigotry, Sabbath observance, and similar practices, incomprehensible. He consistently questions how a nation that stands so intellectually high and serves as a shining example to other peoples can adhere to such absurd principles in religious matters. Schopenhauer also believes he can demonstrate, like the Prakriti of the Indians, that the Platonic Ideas are identical to Kant's thing-in-itself (which, as we have seen, is equivalent to Schopenhauer's Will). Their reflection is the world as appearance or (according to Schopenhauer) as representation.

With the Platonists, according to Schopenhauer, begins that well-known degeneration of philosophy which has persisted until our days, despite numerous and always futile attempts to combat it. "In the main work," it is said at one point, "since scholasticism, indeed, since Plato and Aristotle, philosophy has largely become a continued misuse of general concepts, such as substance, reason, cause, the good, perfection, necessity, possibility, being, becoming, and so on." In this way, gradually and finally, it has become "mere verbal rubbish," most pronouncedly developed by the scholastics. Even Spinoza operated with such unexamined and overly broad concepts. Schopenhauer aptly states, "The inclination toward such a procedure may ultimately rest on a certain inertia of the intellect, finding it too burdensome to constantly control thinking through perception."

According to Schopenhauer, Locke was the first to insist on investigating the origin of these philosophical concepts, thus leading back to perceptibility and experience. The same was done by Bacon, and later, in a certain sense, by Kant, who, however, was initially still entangled in scholasticism and neglected empirical observation over the so-called pure intuition. Nevertheless, Kant, according to Schopenhauer, is the one who finally overturned scholastic philosophy, thus effecting the greatest revolution in philosophy. Scholasticism, in Schopenhauer's view, begins with the Church Father Augustine and ends with Kant; its fundamental character is the subjugation of philosophy to the prevailing national religion. Although Descartes, Bruno, and Spinoza briefly deviate as exceptions, they had no influence, as the latter two were too isolated, and the former still firmly stood within the confines of scholastic limitation. Naturally, for Schopenhauer, the most outstanding figure in the history of philosophy is his master, Kant, whom he praises as much as he criticizes Kant's successors. Nevertheless, in a separate appendix to Schopenhauer's main work, we encounter an extensive critique of Kant's philosophy, which, with so much acumen and impartiality,

exposes Kant's shortcomings that it becomes outright devastating and raises suspicion as if Schopenhauer, in his praises of Kant, might not be entirely serious, using him more as a necessary historical foundation for his own doctrine than as a great philosopher. In particular, Schopenhauer rejects the entire Kantian doctrine of categories as confused, groundless, self-contradictory, labeling his theory of knowledge as unclear gibberish shrouded in constant darkness. He characterizes Kant's doctrine of antinomies as paradoxical, pointing to a specific instance (Point 107) where one's understanding comes to a standstill. Schopenhauer finds Kant himself to be peculiar, unclear, confusing, illogical, self-contradictory, engaging in word battles, often so obscure that no one can make sense of it. He accuses Kant of frequently basing his deepest analyses on arbitrary and false assumptions and asserts that Kant has not clarified but confused and distorted the concept of the nature of reason. Therefore, only the famous distinction between appearance and the thing-in-itself remains, in which Schopenhauer acknowledges Kant's great and immortal merit. However, even this merit diminishes when Schopenhauer reveals the grand contradiction into which Kant has entangled himself, which has, as known, become detrimental to his entire theory. According to Schopenhauer, Kant summons the thing-in-itself through the inference that appearance must have a cause that is not itself an appearance—while, paradoxically, Kant defines the relationship of cause and effect as a form of our understanding and, therefore, only applicable to appearances! Thus, Kant, through erroneous methods and false premises, arrives at a result that, while inherently correct, Schopenhauer claims to have newly and better justified.

Thus, in the end, according to his disciple and admirer Schopenhauer himself, there is hardly anything commendable left about Kant, comparable to his three famous followers whom Schopenhauer calls "the three famous sophists of the post-Kantian period" and pursues with just as relentless contempt as cutting mockery. He unleashes the full force of sarcasm, carried by intellect, knowledge, and rudeness, upon these unfortunate individuals who, in his view, have hindered and made impossible the development of Kant's philosophy. He dismisses everything they have done and written as useless, miserable, based entirely on charlatanism and wind, removing it from the ground of genuine and truth-seeking philosophy. Particularly against the last of them, Hegel, he gets into a rage whenever he mentions him, forgetting even the most basic rules of literary decency. "Windbags," "charlatans," "sophists," "miserable word peddlers" are among the mildest terms Schopenhauer uses in reference to Fichte, Schelling, and Hegel. He calls Hegel a "clumsy charlatan," a "thoroughly pitiful patron," a "philosophical minister creature," a "mindless, ignorant, nonsense smearing, philosopher who thoroughly disorganizes minds with unparalleled hollow wordy nonsense," and his philosophy "empty, hollow, and disgustingly wordy." Schelling's philosophy is "a pretentious swaggering," "frivolous blabbering into the day," and all philosophy since Kant is an "old women's and spinning-wheel philosophy." These people, "accustomed to mistaking words for thoughts," have "brought philosophy into contempt." Instead of furthering Kant, his successors have either disregarded him, misunderstood him, or even turned him completely upside down, as seen in the transformation of Kant's separation of the ideal and real into the so-called identity philosophy. The entire philosophical literature since Kant, aside from its principled opposition to Kant as described above, is nothing more than an empty, spiritless, and resultless play with words or concepts, where "the sense flees behind the dark presentation," and as soon as one removes the disguise of these so-called mysteries of absolute thinking, "the secret is revealed that very common thoughts hide behind such a scarecrow of expression." In the second volume of the main work, regarding bad philosophy,

it is stated that this "infinite satisfaction with words" is absolutely characteristic of bad minds; it is based on their inability to deal with clear concepts as soon as these go beyond the most trivial and straightforward relations, thus on the weakness and laziness of their intellect, yes, on their secret consciousness of this weakness, which, in scholars, is combined with the early-recognized harsh necessity to pass themselves off as thinking beings, a demand they believe they can meet with such a supply of ready-made words. This word philosophy, against which Schopenhauer is rightly even more unforgiving than the modern empiricist philosophers, he rightly accuses primarily the Germans, for whom, as a nation, he seems to have no particular fondness, despite being German himself. He calls them people who "seek what lies before their feet in the clouds," or who are "accustomed to accept words instead of concepts," and agrees with Wieland, who considers it a misfortune to be born a German!

But not only against Fichte, Schelling, and Hegel, but against the entire guild of philosophy professors, Schopenhauer directs his deeply piercing arrows. He accuses them of writing and speaking more for external advantages or for the sake of their position than for the sake of truth. He claims their motto is: "Primum vivere, deinde philosophari!" In contrast to them, the true and honest philosophers are usually either persecuted or only become famous after their death. He says of himself that he "takes philosophy too seriously to be able to be a professor of it" and sees it as an outstanding characteristic of the truth-seeking self-thinker that he is self-restrained and is not bound to any salary. "On the whole," it is stated as bluntly as truthfully, "the stable feeding of professors is most suitable for ruminants. On the other hand, those who receive their own prey from the hands of nature are better off in the open." Overall, the characterization that Schopenhauer provides of the self-thinker compared to those who only process the thoughts of others and reap the fruits that rightfully belong to the latter is excellent and truly striking in some places. Philosophy professors again face ruthless chastisement for their manner of writing dark and incomprehensible, playing a thoughtless game with abstract, expansive, general concepts that, the higher one goes, lose more and more concrete content. As one ascends in abstraction, says Schopenhauer, one thinks less. The last, highest, most general or abstract concepts are also the poorest, such as Being, Essence, Thing, Becoming, etc.; they are empty husks. What can philosophical systems achieve that are spun from such concepts? Schopenhauer often applies the excellent Arabic proverb to such philosophy: "I hear the mill clattering, but I don't see the flour."

Under such circumstances, the hostile and dismissive attitude that Schopenhauer's philosophical colleagues have so far maintained towards him is very understandable, and one can hardly blame them for systematically "silencing" him for so long in their own interest. This was all the easier for them as Schopenhauer writes not for the general public but specifically for philosophers, and the manner of his presentation is often quite indigestible for non-philosophers. Adding to this his isolated position in philosophy, which did not impose on anyone the actual duty to engage with him, one can easily understand why many years could pass before Schopenhauer became known. And yet, he deserves the latter in a higher degree than some others whose names are on everyone's lips. Today, the former relationship has changed somewhat; philosophical battles are fought on a slightly expanded terrain, and a man like Schopenhauer can no longer simply be ignored. However, the "History of Philosophy," whose consideration from Schopenhauer's perspective has brought us to this point, will always view him more as a philosophical curiosity and a final fighter for subjective-idealist views in speculative philosophy than as a pioneer of the new era, despite the many elements

within him that suggest otherwise. *) The era of systems seems to be over and may never return.

If the characterization that Schopenhauer provides of the freethinker was earlier deemed excellent, this holds even more true for the depiction he draws of the genius or the spirit. It is a subject to which he gladly and frequently returns, and anyone who reads his description and has even a spark of what is called genius received on their life's journey from Mother Nature must recognize themselves in it. That Schopenhauer finds himself in this case is undoubtedly clear to the impartial observer; only someone with genius could know and depict its most secret characteristics so intimately. His internal sufferings, struggles, adversities, unsociability, isolation, constant battle with the surrounding world that rarely or never understands, his proximity to mental confusion and madness—all of this finds in Schopenhauer a painter using the most vivid colors, who also seasons his portrait with a multitude of excellent anecdotes from the lives of genius men. Schopenhauer notably demonstrates that the persecution mania, which geniuses typically endure, arises precisely from their intellectual superiority, as it "isolates more than anything else and, at least in secret, makes it detested."

**) Ed. Löwenthal (System and History of Naturalism, Leipzig, 1862) refers to him as a "hybrid bouncer at the latest turning point in philosophy, on one side a naturalist, on the other a transcendentalist," and characterizes his doctrine as a "failed attempt to establish a normal real idealism." In the overall view, it is stated there, "S. drove Kantian transcendentalism so sharply to the point that he ultimately fell back into Spinozism in this direction, but on the other hand, he developed Kant's empirical element in a commendable manner, unintentionally placing one foot in the field of modern empirical-pragmatic naturalism in this respect."*

Contrarily, dumb people are generally liked because they allow others to display their intellectual superiority over them. "To certain people," as Lichtenberg concurs, "a man of intellect is a more fatal creature than the declared scoundrel." Even the most necessary recognition is generally lacking for the genius during their lifetime and only becomes visible after their death. "The simple scholar," it is said with a highly witty comparison, "views the genius like a hare, which only becomes edible and capable of preparation after its death, so one must shoot at it as long as it lives." According to Schopenhauer, at all times and across the entire earth, there exists a conspiracy instigated by nature itself among all mediocre, bad, and dumb minds against intellect and understanding. "And do we not see at all times," as stated in "Parerga and Paralipomena," "the great geniuses, whether in poetry, philosophy, or the arts, standing like isolated heroes, maintaining the desperate fight alone against the onslaught of a multitude? For the dullness of the great majority of the species perpetually opposes their work and thereby forms that hostile army to which, in the end, they succumb." And in his treatise on free will: "But not only has nature at all times only produced very few real thinkers as rare exceptions, but these few themselves have always been only for very few. Hence, delusion and error continuously maintain their reign." Unfortunately, no one will be able to refute this heartfelt cry of the genius, who has long sought recognition in vain, and the old experience that great men are persecuted during their lifetime and monuments are erected to them after death will never lack examples.

In accordance with his polemic against the previous school philosophy and its tendencies that transcend experience, Schopenhauer expresses himself very decisively regarding philosophy and its method on every occasion in the sense of the so-called empirical philosophy. However, one must not think of what has been designated in recent years as the actual goal of philosophy with this name. Like many of his predecessors or contemporaries, Schopenhauer has enough insight and acumen to speak of experience as the only remaining support on the

fluctuating sea of philosophical opinions. Still, he lacks the courage or consistency to truly embrace experience and willingly sacrifice his opinions that do not align with it.

On the contrary, he consistently seeks facts, especially in the natural sciences, but they are either often interpreted and brought in a way that serves as a backdrop to his system but not as a support, or they are completely misunderstood. It seems that someone once raised in speculative philosophy and nourished from the start with its milk cannot develop a sense for the factual and empirical as required by a true philosopher of experience. Only a real education in scientific or empirical perspectives can address this deficiency.

Hence, everything that has been brought forth by philosophers as the so-called empirical philosophy, despite all efforts, often deserved the title little and soon turned back from the original design into speculative constructions. *) Although Schopenhauer himself is only a genuine philosopher of experience in specific matters, what he says about the application of experience in philosophy is very true and doubly noteworthy in the mouth of an ideal philosopher. According to Schopenhauer, true philosophy cannot be spun from mere abstract concepts but from observation and empiricism. Throughout time, he argues, philosophy oscillates between the use of the so-called subjective and the so-called objective sources of knowledge. The Scholastics and Kant believed that metaphysics should not rely on experience at all, thus blocking the path to truth. But, as Schopenhauer states, "the solution to the riddle of the world must arise from the understanding of the world itself." Metaphysics should not fly over experience but understand it thoroughly from the ground up. According to Schopenhauer, experience, both external and internal, is the main source of all knowledge. He refers to his own system as derived from experience, a claim that can indeed be considered bold. Therefore, he also calls it immanent dogmatism, in contrast to Kant's transcendent dogmatism, which goes beyond the world, while his propositions, although dogmatic, are drawn from experience and do not extend beyond the given world of experience. He asserts that his philosophy originated on the so-called analytical, not the synthetic path.

**) Naturally, experience alone cannot establish philosophy; rather, experience and syllogistics must complement each other. The empirical method can seldom prove that there are no contradictory facts, as nature is richer than experience. Even Bacon resorted to speculation when his empirical method was no longer sufficient. Understanding the whole is the ultimate goal of all science; a mere accumulation of material is of little value. However, theories are not final but only provisional. Philosophy should progress with time and be carried along by its flow.*

Note by the author.

He cannot be satisfied with words or general concepts but seeks to get to the bottom of things everywhere. We, as Schopenhauer expresses it, are confined in the world like in a prison; what is beyond it, we do not know and are unable to solve the great mystery of the world, which always lies there like a threatening Sphinx, or to find the so-called Absolute through operations of reason. Instead of talking about the "Absolute," "Infinite," "Supernatural," and the like, one could just as well talk about "Cloud-Cuckoo-Land," according to Schopenhauer. Accordingly, Schopenhauer explicitly denies the possibility of metaphysics at various points, even though he inconsistently allows it to be valid at other times and speaks of metaphysics as teaching us to recognize the essence of things in the will. Indeed, his will is a thing that lacks nothing in metaphysical content. There is said to be a metaphysics, but only one that never detaches itself from experience; it remains immanent, does not become transcendent, and only speaks of the "thing in itself" in its relationships to appearance. Furthermore, in his struggle against supernatural philosophy, Schopenhauer forgets himself so far as to admit that systems must always be one-sided. Only the highest standpoint, one that overlooks and takes

everything into account, "Parerga and Paralipomena" says, "can provide absolute truth." Certainly! And one wonders, quite reasonably, how Schopenhauer could persist in his system after gaining such insight.

As with experience in general, Schopenhauer also shows the highest respect for the natural sciences, explicitly acknowledging their significance for philosophy. This is unlike the "philosophy professors" he opposes. He frequently recognizes their importance by returning to questions of natural philosophy. Although encountering many errors and skewed views, Schopenhauer's efforts to educate himself in these matters are highly commendable. His wealth of positive knowledge, compared to what philosophers typically know about nature, is considerable. While often exhibiting significant and intriguing alignment with modern materialistic schools, he doesn't miss an opportunity to combat what he calls the necessary consequence of realism—the so-called Materialism, which was not yet, as it is today, a topic of common discourse.

Nevertheless, he opposes Materialism in a way that indicates no other philosophical direction poses as much internal discomfort to his worldview as Materialism. He doesn't underestimate the inner strength of Materialism. His main objection to Materialism stems from his theory of the world as representation and his axiom: No object without a subject! According to Schopenhauer, Materialism unjustifiably starts from the object, relying on an enormous petition principii. Without cognition, which he constructs as a manifestation of matter, we would not know anything, including the starting point of Materialism—the matter itself. However, since the ultimate goal and ideal of all natural sciences are a fully realized Materialism, it follows that all science in the true sense will never reach a final goal or grasp the inner essence of the world; all knowledge is only relative. Materialists can be satisfied with Schopenhauer's argument, as they inherently perceive their object as independent of representation. In contrast, Schopenhauer fully agrees with Materialists or, more accurately, with the entire field of natural research when it comes to the indestructibility of matter. Indeed, not from chemical but purely philosophical reasons, Schopenhauer finds it highly absurd to doubt such a clear and well-established truth. He remarks against Hegel: "To deny this is to renounce all reason." "The substance persists," he states at another point, "meaning it cannot originate or perish, thus the quantity of it in the world can never be increased or decreased." Schopenhauer even refers to matter as "absolute" and considers it the only thing to which this designation could be applied. He attributes the ability to think to matter itself and explicitly declares thinking as an organic function of the brain. "If matter can fall to the Earth," it is stated at one point, "it can also think!" Thus, there is no contradiction between mind and nature. According to Schopenhauer, Descartes was the first to distinguish between thinking and extended substance, and for a long time, this axiom remained until Spinoza asserted that both types of substance were one and the same. The same happened later with the distinction between the ideal and the real. Just as Schopenhauer fights against materialism, he also opposes atomism. However, where philosophers battle against scientific concepts, peculiar misunderstandings arise, as in his rejection of both well-known light hypotheses. It is not clear where he derives the right, based on philosophical reasons, to reject things that are only physically observable. Interestingly, in his discussion of the persistence of heat, there is a foreshadowing of the great truth discovered in our days, referred to by the author of this essay as "the immortality of force." Nevertheless, he believes that light can disappear, not realizing that natural forces do not vanish but only assume different forms.

Accordingly, he adheres to the often-expressed view that the whole world must gradually sink into cold, darkness, and rigidity through heat radiation. In astronomy, he torments himself with the useless question of whether space can have a limit and whether there could be a fixed star that is the outermost?! As we know today, especially according to the laws of gravitation, a spatial end to the starry sky is an impossibility. Overall, Schopenhauer, like all speculative philosophers, believes he can speak and pass judgment on everything, no matter how distant it may be from his field of vision, based on his philosophical consciousness. Thus, in his natural philosophical discussions, despite his strong opposition to teleology, one occasionally encounters very intensive teleological views. In geology, Schopenhauer does not hesitate to express ideas about the chemical formation of granite that do not align well with our current knowledge. According to him, the history of the Earth is nothing more than a gradually ascending objectivation of the will, with humans forming the last and outermost stage!! Amidst such peculiarities, however, there are again some very sound and doubly noteworthy views on the gradual development of organic genders, humans, and so on. Schopenhauer also believes in major earth revolutions, with only three points of origin for humanity in the ancient world, and so forth. According to him, there has never been a naturally white race; it only came into existence due to climatic influences—a theory he likely proposes for the sake of his brown Hindus. Schopenhauer completely overlooks the well-known and powerful influence of the original racial differences on the physical and intellectual development of peoples. He still adheres to the false belief that nature has destined humans for a vegetarian diet. This leads to some physiological fantasies of a very unphysiological nature, reminiscent of the times of natural philosophy. Schopenhauer particularly ardently takes up the cause of the now increasingly forgotten "vital force" and calls arguing against it foolish! The vital force may turn around in its grave and express gratitude. If there is no vital force, Schopenhauer believes, then either chance or God must have created organic beings; but since both cannot be true, there must be a vital force. Indeed— a compelling proof! Still not worse than the logic employed by our most modern advocates for the vital force! In agreement with the "school philosophers" he so detests, Schopenhauer further opposes reducing organic life to chemistry and rejects the efforts of electric, chemical, and mechanical physiologists who persistently seek to explain life by the form and mixture of its components. According to him, all processes in the body are nothing more than manifestations of the will. Teeth, throat, and digestive tract are the objectified hunger, the genitals the objectified sexual drive, and so on. Schopenhauer is also a willing believer in the so-called latent life, exaggerating it to the extreme with beliefs in toads in stone, thousand-year-old mummy wheat, and similar phenomena. However, the philosopher viewing nature in the light of his system strays furthest when discussing the phenomena of the so-called "nightlife of the soul" in the physiological realm. Schopenhauer takes all the countless tales of animal magnetism, even the most improbable ones, as pure truth. He declares the phenomena of clairvoyance, second sight, somnambulist dreams, sympathetic cures, and the like as established facts. To support this, he cites individuals like Kiefer, Jung Stilling, Just. Kerner, and dismisses opponents as simply ignorant. Schopenhauer refers to animal magnetism as the most profound discovery ever made in philosophy and practical metaphysics. He even suggests that Christ performed miracles through animal magnetism!! In doing so, he indulges in the most adventurous expressions about magnetic currents, polar directions, life force, and so on. The foolish statements of the Seeress of Prevorst, who makes a spirit wait until she finishes her soup, are cited as confirmation of Kant's doctrine of the

thing-in-itself! Even medieval magic finds favor in his eyes— all of this, of course, for no other reason than because he believes he finds actual confirmations of his and Kant's doctrines. Since, according to Kant-Schopenhauer, time and space are not real but subjective, in the somnambulist person, a liberation of the subject from these limitations and consequently a seeing into the future and distant places should be possible! On the other hand, sympathetic cures, as well as many other phenomena of animal magnetism, are explained by a direct action of the will, whereby Schopenhauer, of course, welcomes the countless lies and deceptions of the so-called will magnetizers. The amusing incidents that Schopenhauer personally caused a few years ago, during the presence of the well-known magnetizer Regazzoni in Frankfurt, exposed as a fraud by Frankfurt doctors, through his enthusiasm for his scams, are known. On the other hand, what is said about the physiological inheritance of mental peculiarities is quite interesting. According to Schopenhauer, one inherits the mind or intellect from the mother and the character or will from the father.

In the year 1836, Schopenhauer published a special pamphlet titled "On the Will in Nature, etc.," in which he outlines the supposed confirmations that his philosophy was meant to have received from the discoveries made by empirical sciences in the meantime. To truly convince oneself that these confirmations are indeed lacking, one must read this pamphlet. Schopenhauer's main authority is a completely unknown figure, a Dr. Brandis in Denmark, whom he unjustly labels as an "Empiricist." At least based on the provided excerpts, these passages do not characterize Mr. Brandis as an Empiricist but rather as belonging to the former school of natural philosophy. Furthermore, they are either entirely unsupported for Schopenhauer or taken out of context, forcefully interpreted, etc. Even the more famous names Meckel and Burdach are only cited by Schopenhauer in places where they still adhere to the old views of "Natural Philosophy," which, as is well known, have fallen completely into disrepute today.

Finally, Schopenhauer takes a distinctive standpoint in a last relevant question, namely the question of animal souls. In this regard, he differs favorably from the views of speculative philosophy but still remains behind those of modern empirical philosophy. Schopenhauer is motivated by a deep compassion for the suffering of animals, arising partly from his heart and partly from his philosophy. He convincingly points out how it is the idealists among philosophers who degrade animals and, as a false philosophical consequence, arrive at principles of harshness and cruelty towards them. According to Schopenhauer, animals not only possess understanding, sensation, memory, etc., but also consciousness of their ego or self-awareness. Some foolish philosophers unjustifiably deny this self-awareness. Schopenhauer exclaims that such a philosopher should find himself between the claws of a tiger and soon realize the difference the tiger knows between self and non-self! Humans and animals are identified as essentially identical and referred to as "brothers." According to Schopenhauer, the Indian religions have the great advantage over Christianity in that they do not strictly separate humans and animals, considering the latter as mere things. Instead, they recognize the intimate relationship between both and recommend love towards animals. Hence, in India, animals are still highly respected today, contrasting with the cold cruelty of Europeans towards them, which must offend any compassionate heart. Nevertheless, Schopenhauer asserts that humans and animals are fundamentally distinct, primarily through reason or the ability to form concepts. While animals are said to have understanding, which only pertains to perception, they lack reason, as perception can never be conceptual. This

sharp distinction is based on reason being the faculty of abstract, and understanding being the faculty of intuitive representations. Apart from the fact that such a separation of reason and intellect is not necessary even on philosophical grounds, Schopenhauer also acknowledges the countless physical and mental transitional stages between humans and animals demonstrated by empirical sciences, which blur any distinct differences in a similar manner, as with other boundaries within the natural realms established only by the systematic understanding of humans. Cases where the philosophical category proposed by Schopenhauer would be entirely inapplicable can be found plentifully in nature, although it must be admitted that once a boundary is crossed in higher beings, nature can develop entirely new abilities and states dissimilar to the previous ones.

So, if we take a brief look back at what was recently said, Schopenhauer's relationship with the natural sciences, despite his great respect for them, appears to be rather unproductive. The only noteworthy aspect is that even an ideal philosopher explicitly acknowledges not only the legitimacy but fervently defends the right of the natural sciences to participate in philosophy. Schopenhauer shines more brightly again when he operates in the theoretical realm, where we see him wield the scourge of criticism against theological errors, just as he did previously against philosophical ones.

This critique has the most disruptive effect on the theological-philosophical concept of the Absolute, which he calls the "neumodish title for dear God," and which he derives solely from the philosophy's endeavor to serve theology. According to his view, philosophy cannot aim to seek a causa efficiens or causa finalis of the world; it does not inquire about the origin and purpose of the world but only about what the world is, so it has no concern for the question of the so-called Absolute. "If the gentlemen absolutely want an Absolute," Schopenhauer declares tellingly at one point, "I will give them one that better meets all the requirements for such, compared to their confused nebulous forms; it is matter!" None of the ancient philosophies or religions, according to Schopenhauer, knows anything about God or the Absolute, just as little as about the beginning of time. It is scandalous how in the writings of scholars, generally, theism and religion are taken as identical, as philosophy has so far only made itself the servant of theology and politics. Buddhism, with its 300 million followers, is thoroughly atheistic. Similarly, the two Chinese religious systems, Taoism and Confucianism, are atheistic, and the Chinese language has no words or expressions for the concepts of God and creation. In antiquity, no other people than the Jews had the idea of a revelation and a single, world-creating God or monotheism, and from them, this idea spread further to Christianity and Islam. — Pantheism is no better off with Schopenhauer than monotheism. An impersonal God is, according to him, not a God at all but a concept, an abused word, a contradiction in terms. Pantheists think they have achieved a lot because they title the inner unknown essence of the world as "God." But a God, he continues, who would have allowed himself to transform into such a terrible world must have truly been tormented by the devil. Should God, he sarcastically exclaims, transform into six million Negro slaves with 60 million whip lashes daily or into three million European weavers?! Spinoza also only for external reasons and out of fear of the fate of a Bruno or Vanini called the world "God." What the pantheists call "God" is nothing else but the "Will," the acceptance of which alone can save one from determinism. The course of the world is like that of a clock, which continues to run after it has been wound up once. Therefore, there is no choice but to either view the world as a mere, necessary running machine, or to acknowledge the will as its essence! Under

such circumstances, there is no doubt that Schopenhauer's own philosophy, from a theological perspective, is neither monotheistic nor pantheistic, but quite evidently atheistic. Indeed, the role that Schopenhauer assigns to his will often resembles that of the God of monotheists or pantheists, but he still distinguishes himself from them in a too pronounced manner to be confused with them. The Schopenhauerian will has nothing divine in itself and, according to its creator, is neither conscious nor intentional. It is a aimless striving without purpose, end, or aim; hence, its objectification, life, as well as every manifestation, is only bleak and likewise without purpose and end. Life is not capable of true happiness, only suffering and an entirely miserable condition. "What history tells is only the long, heavy, and confused dream of humanity." History shows that this human world is the realm of chance and error, that folly, malice, and absurdity rule in it, and that good only penetrates with difficulty or not at all. The "Will," it is said, stages the great tragic and comic play at its own expense and is also its own spectator. In these expressions of the gloomiest worldview, Schopenhauer adds some profound and truly shaking reflections on the misery of life, for the details of which he seems to have sharpened his gaze to the utmost.

With this atheistic fundamental character of Schopenhauer's philosophy, its general attitude towards religion and Christianity may not be very friendly. A longer chapter, written in a dialogical form in "Parerga and Paralipomena," delves into the value and worthlessness of religions, demonstrating the impartial standpoint Schopenhauer can take on matters that do not directly relate to his system.* However, his anti-religious sentiment prevails. "Religions," it is said, "are like glowworms; they need darkness to shine." According to Schopenhauer, religion and philosophy have nothing to do with each other, and previous philosophy has almost always degraded itself by allowing itself to be influenced by prevailing religious views, with few exceptions. Belief and knowledge are strictly separate things, each must follow its own path; they are "like the two scales of a balance; as one sinks, the other rises." Revelation is nonsense; there is no other revelation than the thoughts of the wise. Therefore, so-called rationalists in theology have no understanding of the true spirit of Christianity. The truth sought by rationalists is not in religion but in philosophy. To be a rationalist, one must be a philosopher; one cannot serve two masters at once. Either believe or philosophize! Regarding the Christian religion, Schopenhauer identifies many external and internal shortcomings, asserting its inferiority compared to the religions of the Greeks, Romans, Indians, etc. Whatever good is in it, he claims, comes from Indian blood. Still, the god Jehovah of Judeo-Christianity is preferred over all other religious systems. Schopenhauer particularly attempts to tally the historical errors of Christianity and compare Christian morality with the actions of Christians. According to him, the fanatical atrocities of history are primarily known from monotheistic religions like Judaism, Christianity, and Islam. Schopenhauer calls fanaticism a fearsome monster that, solely in Madrid, caused 300,000 people to agonizingly perish on the pyre in 300 years. He provides a poignant depiction of the glorious time of Pericles compared to the fanatically darker Middle Ages. (Some of our readers may involuntarily be reminded of what the English are currently doing in the name of Christian religion and civilization in the homeland of religious wisdom, India.)

**) The dialogical form, excellently suited for the treatment of contentious philosophical questions, is frequently chosen by Schopenhauer and usually handled in a very skillful manner. He expresses his own view on it in the words: "The dialogical form must, by emphasizing and elaborating the fundamental divergence of views, genuinely become dramatic; there must truly be two speaking. Without such intention, it is a futile play, as is often the case."*

Schopenhauer also finds a determined and dangerous opponent in the dogma of personal perpetuity. That something, he explains, after not having existed for an infinite time, should now endure for all eternity is an exceedingly bold assumption. Only what is without a beginning or eternal can be indestructible. Therefore, our religious view commits the great mistake of assuming an origin from nothing and yet an eternal continuation, while the Hindus, quite consistently, not only establish a continuation after death but also a life before birth, declaring everything that is as eternal. A doctrine of immortality does not fit with a creation from nothing; for what cannot be destroyed must have always existed. All evidence for continuation after death can be just as easily transformed into evidence for life before birth. Hence, we are indeed immortal, but not as individuals, as personalities, which are only a temporary manifestation of the general force in humans, but only as components of this primal force. Death, as Schopenhauer poignantly points out, is the fundamental cause of all philosophy; it does not concern our essence itself, which is imperishable. It places us back into the state of the thing-in-itself, into that primal state where the distinction between object and subject is abolished, and the shortcomings of this world of appearances are absent. What vanishes in death is not the essence of humans themselves, which knows neither beginning nor end nor the limits of a given individuality, but only the individual consciousness, which is not the cause but the result of organic life. Therefore, death is entirely similar to the state of deep sleep or unconsciousness and cannot be distinguished from them! Hence, it should not be feared or considered an evil, as nonexistence is painless, as philosophers have demonstrated convincingly throughout the ages with sound reasoning. "Mors est non esse," says Seneca, and Epicurus: "Death concerns us not, for when we are, death is not, and when death is, we are not." Therefore, it is highly unwise to fear death; on the contrary, it should be desired, as the loss of this individuality, according to Schopenhauer, is not a loss but a gain. "Je ne sais pas," says Voltaire, "ce que c'est que la vie éternelle; mais celle-ci est une mauvaise plaisanterie." But according to Schopenhauer, true existence is tied to this individual consciousness that is lost in death. What disappears in one person and is replaced in another is essentially the same, circulating in an eternal cycle. "Where are the dead?" you ask. The answer: "Within yourself!" — Despite death and decay, we are all still together. Nothing is lost. Ex nihilo nihil fit, et in nihilum nihil potest reverti! Schopenhauer deeply laments that Christianity and Islam have, with fire and sword, destroyed the comforting primal belief of humanity in the imperishability of our essence and replaced it with an origin from nothing, incongruent with eternal continuation.

Some readers might suspect, based on these views, that Schopenhauer would also become an apologist for suicide. However, this is not the case; he rejects it and only calls the theological reasons against suicide "weak, easily refutable sophisms." Furthermore, he claims that only the monotheistic or Jewish religions stigmatize suicide as a crime and expresses his respect for the heroes of antiquity who practiced it. Just as decisively as in religion from the standpoint of atheism, Schopenhauer takes a position on the question of the freedom of the human will from the standpoint of determinism. He does not hesitate to cite numerous church authorities in favor of the Catholic dogma of the "unfreedom of the will." The will is only free as a thing-in-itself, not as an appearance, and human actions belonging to the world of appearances occur necessarily and without free choice. Schopenhauer wrote a special treatise on the freedom of the will, crowned by the Norwegian Academy of Sciences, in which, following Kant's example, the coexistence of freedom and necessity is taught. Kant distinguishes between the so-called empirical and intelligible character, placing the former in

appearance and the latter in the thing-in-itself. Thus, according to Kant, there is empirical necessity of action and even accountability alongside transcendental freedom. The former is subject to the categories of time, space, and causality as an appearance, while the latter is free, independent of these forms, and akin to the inner essence of the human being-in-itself, or what Schopenhauer calls Will.

Schopenhauer argues that the empirical freedom of the will, which would otherwise be an exception to the law of cause and effect, is excluded since appearances always follow the law of cause and effect. Freedom is transcendental. According to Schopenhauer, everything depends on what one is, from which necessarily follows what one does; thus, responsibility is felt for one's essence, not for one's actions. The entire argument is inherently speculative and arbitrary. Freedom that cannot be exercised is not freedom, and a person who only does what their empirical nature necessarily compels them to do cannot be declared accountable. However, asserting freedom lies in being, as Schopenhauer does, is just a change of terms. The claim that one feels responsible for essence and not for actions is entirely false and contradicts experience. Every day, one can witness experiences to the contrary, hearing people excuse themselves or others for their actions based on their character, traits, upbringing, or the expression: "I am just like that," or "he is just like that." Essence is rightly presupposed as something that more or less escapes the free will, while actions are seen as a consequence of essence. Modern empirical philosophy stands on a completely different, more solid ground, free from all speculative confusion. She, too, follows the Operari from the Essentia and demonstrates only with the help of empirical facts and calculations how the Essentia arises as a necessary consequence from certain given circumstances, physical or mental predispositions, random influences, etc., allowing this necessity to transition to the Operatic in such a way that it oscillates between the narrowest limits. But thereby, free choice is not entirely denied, and the comforting hope is given that improved conditions of individuals and the human race will also bring about an improved choice.

In the end, Schopenhauer pursues one of his most important and interesting trains of thought in ethics, which he no longer introduces into philosophy through a back door, like Kant, but rather analyses through an investigation based on real experience. This examination is capable of throwing a very weighty pound into the balance of modern scientific sensualism. Only someone who has not read him would dare to accuse Schopenhauer of lacking ethical sensitivity. Not only during this investigation, but everywhere there is an opportunity, he expresses such a true and warm feeling for the best human virtues — honesty, justice, compassion, and philanthropy — and such deep empathy for any kind of foreign suffering or pain that one cannot help but respect both his heart and his intellect, and acknowledge the ancient truth that outstanding intellectual gifts almost always go hand in hand with a rich emotional life. What is reflected in Schopenhauer's expressions is not hypocrisy or that superficial sentimentality affected by some writers more than felt, but the deep pain of the sage who looks to the depths of existence and into the ultimate depths of human misery or human absorption. In his main work, Schopenhauer provides a classic depiction of the individual elevated above common egoism through philosophy, who not only sees the suffering of others but also that of the entire world as his own. Therefore, the slanderers cannot attribute it to a lack of heart or suppression of their own moral voice when, in contradiction to his master Kant, Schopenhauer dismisses the so-called moral law or

conscience or the innate idea of the good into the realm of fairy tales, labeling it as "children's school morality." According to Schopenhauer, Kant's ethical principle is a transcendental one, independent of experience and instruction, metaphysical, and thus forms a bridge to the so-called intelligible world or the thing-in-itself. The so-called categorical imperative is the foundation of morality for Kant; it is supposed to manifest itself in every individual with immediately compelling force from within, and they should be virtuous and rational. That this old and stale theory deviates significantly from the truth, one would willingly concede to Schopenhauer, and acknowledge his proof that Kant's moral principle is fundamentally nothing more than the old theological morality. According to Schopenhauer, this mistake by Kant gave rise to the subsequent transcendental ramblings from an innate supernatural reason, as Kant's so-called practical reason was immediately rebranded as such. According to the nonsense philosophers (Iacobi, etc.), reason is a faculty directly perceiving the supernatural, geared towards metaphysics, and intuitively recognizes the ultimate reasons of all things. All of this, according to Schopenhauer and likely anyone who wishes to use their common sense, is pure nonsense. There is no rational intuition, which is why nothing can be inferred from pure reason. Even if it were so, there would need to be a consensus of all metaphysical views, while in reality, they form a collection of the most contradictory opinions. Therefore, conscience, which Kant sees as something immediately powerful and established, is not according to experience at all, but rather a very vague, changing, and dependent concept influenced by contingencies. Without state authority, without external coercion, no conscience would be of help. "Good" is not something absolute but only the expression of certain relations drawn from experience; there is no so-called "Idea of the Good." When encountering traits of a so-called good conscience, one also encounters traits of the opposite, such as envy, schadenfreude, malice, and so on. The main driving force behind all human actions, according to Schopenhauer, is egoism. He suggests trying to explain any given action first based on egoism before reaching for other explanatory grounds. Guided by this thought, Schopenhauer ruthlessly exposes the moral weaknesses and vices of individuals and society, demonstrating a deep understanding of the selfish nature of humanity. In doing so, he finds ample opportunity to satisfy his contempt for humanity and his hypochondriacal mood. Unfortunately, one cannot claim that he completely misrepresents when he calls the world and society a masquerade, where everyone wants to appear different from what they truly are, and when he exposes the glaring contradiction between the moral teachings and the daily practice of morality. According to him, much of honesty and justice is essentially conventional, and even though there are undoubtedly actions driven by selfless philanthropy and voluntary justice, such actions do not stem from an innate conscience but solely from the feeling of compassion. Overall, Schopenhauer recognizes only three basic motives for human actions: self-interest, malice, and compassion. According to him, the cardinal virtues of justice and philanthropy only root in compassion, which surely does not rely on any innate knowledge but consists solely of putting oneself in the thoughts of another suffering individual and then doing what one would have hoped or expected from a third party in such a situation. If Schopenhauer had been completely consistent, it would have been easy for him to continue along this line of thought and demonstrate that compassion, too, ultimately amounts to nothing more than refined selfishness. However, he does not do this and considers compassion the only genuinely moral driving force, the sole source of non-egoistic actions that exists. According to him, nothing offends more than the opposite of compassion, namely cruelty. Opposing compassion is the malice also present in the human heart, which, in a

manner similar to compassion's goodness, exercises its own evil. According to Schopenhauer, both have in common that they do not originate from egoism. Therefore, everything that happens not out of self-interest occurs either out of malice or out of compassion. Despite individual shortcomings, this is an excellent exposition based on real experience that thoroughly refutes objections derived from innate conscience against sensualism.

In our time, Schopenhauer is likely to receive less applause for his paradoxical and somewhat outdated views on jurisprudence and politics. He opposes freedom of the press, the republic, America, trial by jury, Jewish emancipation, and even beards. On the contrary, he supports hereditary rights, privileges, nobility, and so on. He presents a highly inaccurate depiction of the merits of monarchy and considers the fragmentation of Germany natural and appropriate! Well, not everyone can agree on everything, and the reader might find solace in considering a quote from Schopenhauer himself (in Parerga and Paralipomena, Volume 2), stating that "Everyone, even the greatest genius, is decidedly limited in some sphere of knowledge." *)

**) In general, as is evident from the biography of Arthur Schopenhauer published in the meantime by W. Gwinner (Leipzig 1862), he was hostile to politics because he considered it a degradation of himself to direct his intellectual powers towards a sphere that seemed so small and narrow to him. Such a standpoint is undoubtedly an expression of intellectual arrogance, which in turn is a consequence of a certain intellectual or emotional narrowness. The principle of a true philosopher, on the contrary, will always be the famous Ciceronian maxim: Nil humani a me alienum puto. In any case, for the benefit of humanity, the slightest political activity is better than the elaboration of a system that, even if it had prospects of universal acceptance, would ultimately only lead to despair in all aspects of life, as well as to Indian resignation and deathlike numbness.*

The reader will soon find, beyond the mentioned aspects, numerous more or less true but always witty remarks or elaborations revealing the work of philosophical genius in Schopenhauer's writings. These include discussions on the nature or application of reason, intellect, or error; the basis and relationship of human sciences among themselves; wisdom, honour, politeness; duels (with the latter undergoing truly annihilating criticism); and finally, the essence of art. His views on wisdom are often somewhat Machiavellian on one hand, and on the other, too much in line with the learned man's inclination towards solitude and disdain for humanity, yet they reveal a keen sense of observation. His views on art are idealistic, as they attribute the creation of artistic works to the genius itself and to a spiritual anticipation, rather than assembling individual empirically found beauties.

Thus, we have come to know a highly peculiar and significant figure in Schopenhauer, whether our overall judgment of him be favorable or unfavorable. Standing at the boundary between two great philosophical epochs, he points backward with one hand and forward with the other, being an idealist here and a realist there. On one side, he is still deeply entangled in the intricacies of pure speculation, while on the other, he has already ascended to the bright heights where philosophy, hand in hand with experience, pursues a new goal. Even if someone were to demonstrate that it is not so, and that Schopenhauer lacks a genuine deeper connection to the philosophical development of the present time, the genius of the man, his wealth of thoughts and knowledge, his peculiarity as a philosopher would nonetheless persist and be sufficient to recommend him to the attention of the public. It should be added that many contradictory, even repulsive, and peculiar aspects of his views may be more easily overlooked or at least more explainable when one does not forget that Schopenhauer possesses that peculiar inclination for paradox, a powerful trait often found in exceptional minds. Schopenhauer is candid enough to acknowledge this himself. "Often," he says, "I have found ideas, which I hesitated to present to the public due to their paradoxical nature, later, to my joyful surprise, discovered in the works of great men of the past." Genius has a penchant for paradox because it cannot resist the temptation to defend positions that seem untenable to

ordinary understanding with its extraordinary means. This inclination has its merits as it can lead to the discovery of new truths or shed light on old truths from new perspectives, but when exaggerated in scientific matters, it becomes dangerous and ultimately renders every orderly thinking impossible. The suspicion that Schopenhauer may have been led to formulate his fundamental assertion about the world as will and representation due to his strong inclination for paradox may not stray too far from the truth. Equally reprehensible and complicating the reading is Schopenhauer's writing style. He also follows the old, disagreeable manner of most philosophical writers, not sticking to the subject at hand once it is introduced. Instead, he quickly deviates from an initial thought into a myriad of tangents, discussing everything and anything except what should be the main focus. This unpleasant style often renders a clear understanding of what the author actually intends to say impossible. Conversely, the entirely clear and consistent mind always seeks to separate and distinguish as much as possible. It doesn't release the thought confined to the smallest space until it has been thoroughly exhausted or clarified.

For one who wishes to acquaint themselves with Schopenhauer not systematically but in a general sense, the reading of his work titled "Parerga and Paralipomena" would likely be most recommended. In it, he delves into various and mostly interesting subjects, and those already familiar with the outlines of his system will be able to construct a fairly complete picture of his philosophy from this book, as Schopenhauer has a tendency to repeat himself. In any case, one will find enough of the interesting and ingenious that they will not regret the time spent on reading. Finally, for those who have not read Schopenhauer themselves, presentations such as the present one can provide an understanding of his views but not of his highly peculiar individuality. This individuality is so intertwined with his philosophy that, to judge him correctly, one must read him directly. Especially for those interested in Schopenhauer, do not believe that you can have enough of representations, such as those provided by Frauenstädt!

10. Towards the Natural History of Man I

(Dr. Theodor Wait: "Anthropology of Native Peoples." Part One: On the Unity of the Human Race and the Natural State of Man. Leipzig, 1859. Fleischer)

(1859)

A excellent book, bearing witness to rare diligence, in which the author, a Professor of Philosophy in Marburg known for previous works in the fields of psychology and education, attempts to construct an anthropology or doctrine of man on an empirical or experiential basis—a truly noteworthy undertaking in a time when philosophy fervently seeks to acquire experiential knowledge and focuses particularly on the essence of man itself. The author rightly holds the view that the sciences that have primarily engaged in this branch of knowledge, namely anatomy and physiology, are not alone capable of determining the essence of man, and that further philosophical means are needed for this purpose. However, it is regrettable that he has taken his own positions more in the realm of speculative philosophy than in that of empirical sciences. Despite his explicitly directed efforts towards empiricism and the acquisition of facts, which is doubly commendable in a philosopher, he still, in both the general and the specific, views man more through the eyes of a philosopher than those of a naturalist. He seeks in facts more the confirmation of a preconceived opinion than the unveiled reality. This opinion pertains to what Waiß calls the unity or species unity of the human race and is based on the philosophically (not empirically) assumed premise that there is a general and unchangeable essence of man that must serve as the foundation for all investigations about him. According to Waiß, this essence excludes the possibility of so-called specific differences among humans and implies that the same laws of thought and the same moral and intellectual developmental capacity must be valid for all humans. Although the author naturally endeavors as much as possible to reconcile what the empirical sciences have brought to light regarding the nature and origin of humans, their naturalistic and psychological determinations, etc., with his theory, he does not succeed everywhere. The empirical material he presents is often so contradictory that he is either compelled to entangle himself in partial or complete contradictions or, at the conclusion of a particular discussion, to formulate the result in a much less definite manner than he did at the beginning of the book and in the introduction. Ultimately, he may even leave it entirely in doubt. At the outset and after completing the introduction, he struggles unsuccessfully with the establishment of an empirical concept, a perennial challenge for naturalists, whose precise but impossible formulation must naturally be considered indispensable for his understanding of the matter. For anyone attempting to prove the unity of the human species, it is crucial to define what is meant by "species." However, the ever-living nature, scoffing at all boundaries and divisions, is known to care little for philosophical definitions. The new definition of the concept of species that Waitz adds to the countless previous and consistently unsuccessful attempts at definition does not improve matters. Waitz defines species as a "permanent type inherited through reproduction," but the only question of what a "permanent type" is renders the definition meaningless. Likewise, he fails to establish the difference between species and race, forcing him, at the conclusion of an otherwise comprehensive investigation into the concept of species, to leave the question of the unity of the human species temporarily unanswered. In the further course of his writing, Waiß acquaints us with such a wealth of important, interesting, and painstakingly gathered facts on the natural history of man. He

simultaneously addresses many of the currently most debated and crucial questions about the origin and nature of humans. Even without necessarily agreeing with his philosophical views, one is compelled to follow his discussions and narratives with the utmost interest. A brief critical summary of his work is likely to receive the approval of the educated reader.

As we attempt to provide such a summary below, it will become clear once again how natural science and philosophy, from their current perspectives, frequently converge on some of the most significant general questions, only to diverge profoundly at other times. It underscores the pressing need, recognized by the informed, to eventually emerge from the present semi-darkness into light and clarity. The author divides his entire investigation into two major parts: the so-called natural-historical and psychological examinations. The former focuses on the physical, while the latter considers the mental aspects of humanity. Although Waiß, as a philosopher, may not fully appreciate the necessary and intimate connection between these two facets of human existence and acknowledges the drawbacks of such a separate examination, one may still consider the division practical from his standpoint. In the natural-historical inquiry, Waiß initially explores the external influences that shape and transform humans, such as climate, nutrition, education, etc. He attributes to these influences an influence on both the physical and mental development of individuals, extending even further than the materialistic school typically acknowledges. According to Waiß, an Englishman in America has transformed into an entirely different type, specifically that of the Yankee. People who live among foreign tribes or races for an extended period gradually become similar to them, as observed, notably, in the case of the well-known missionary Gützlaff.

The Negro in European society not only undergoes physical improvement but also becomes more intelligent, and it is known that those born in America, known as Creole Negroes, possess much better abilities than those captured in the wild and are consequently paid more. *) Germans, Hungarians, and Turks have undergone essential changes due to the influences of civilization. Even the individual diversity in skull formation increases with civilization, according to Waiss, and the often-heard assertion that skull shape is partly dependent on intellectual culture and changes and improves with it, he claims to have fully confirmed through his studies. This fact is surpassed in importance and interest by a second, related fact recognized by Waiss for its high physiological significance, shedding a bright light on the cultural and historical progress of humanity. It is the observed spontaneous emergence of new characteristics in both humans and animals, which, once established, persistently pass on to descendants. These characteristics can be either individually innate or acquired accidentally or intentionally during life. Even external mutilations sometimes permanently transfer to offspring. The offspring of domesticated oxen pull better than wild ones, just as the young of trained or tamed animals far surpass the wild ones in aptitude. There are acquired instincts, just as there are hereditary diseases. From such and many similar facts, it has been inferred that acquired intellectual education, in terms of predisposition, is just as capable of being inherited as physical traits. The history of individual families proves that mechanical or artistic talents or inclinations toward certain occupations, etc., are passed on, and the aristocracy of nobility is not without a physiological basis for the same reason. From all of this, Waiss concludes that individual human types do not remain universally unchanged, and the only dispute lies within the limits of this variability. The power of intellectual culture seems to be the most significant in this regard.

**) Reclus says that in 150 years, the Blacks in America have covered a good quarter of the distance that separates them from the Whites. The English in Australia have also, as is well known, transformed into a quite distinct, easily recognizable type.*

Note from the author.

From there, Wait proceeds to describe the anatomical and physiological differences among various human races, which he naturally attempts to represent as non-specific as possible to save his proposition of the unity of the species. However, while he minimizes these differences on one hand, he accentuates those, in his view, separating humans from the representatives of the closely related animal world, or the apes, on the other hand. The accounts of human-like beings, of which there are numerous and sufficiently authenticated examples, and to which recently "Miss Pastrana" has provided a globally visible contribution, are said to be false; *) and the renowned American ethnographers Nott and Gliddon, who, relying on their own research and observations, assert in their writings that Hottentots and Bushmen are no further from the ape than from the European, are accused of "outrageous exaggeration"! The disadvantage of the philosopher, who only draws from the judgments or descriptions of others, against those who speak from their own research and observation, is too great in such matters for Mr. Wait's passionate expression to diminish the value of Messrs. Nott and Gliddon's views. This can be even less the case since Mr. Wait himself is obliged, in the course of his argument, to expressly admit the well-known ape-like characteristics of the Negro - even though he declares the difference between him and the ape to be much greater than that between the Negro and the European, and not comparable to the latter. To see the truth in this, one should remember the excellent descriptions by Burmeister, who, being a zoologist and carrying a respected scientific name, not influenced by slavery interests, also speaks from his own observations! However, the descriptions by Burmeister can be supplemented by a hundred others made by eyewitnesses in the same sense. **) In contrast, Waiz frequently presents various unverified narratives of all kinds to support his views without critical selection and often becomes more drowned in the mass of material than elevated by it. Nevertheless, even here, he cannot arrive at any conclusion other than that those facts are more favorable to the unity of the human species than to its diversity. However, this doesn't contribute much to his philosophical theory.

**) In the year 1857, a human monstrosity, Julie Pastrana, with an entirely animal-like body structure, was exhibited in London. Her body, as well as her entire face, was covered with long black hair; she had a narrow, blunt forehead, a swollen mouth, a large tongue, and a short chin. In 1855, a completely hair-covered woman was presented to the English embassy in Ava, and it was noted that such natural rarities were not uncommon in Burma. One should also read the accounts of travelers about the Africans of East Africa, the Malays in Java, the Brazilian forest people or Botokuden (Avé-Lallemant), about the wild people of India, the South American Indians, the natives of Sumatra, New Holland, the Philippines, Borneo, etc.*

Note by the author.

***) Only very recently, in the meeting of the British naturalists in Orford in the year 1860, Professor Hurley declared against Owen, stating that the physiological gap between humans and gorillas is smaller than that between the gorilla and the lowest monkey.*

Note by the author.

An appendix to this chapter discusses the alleged incapacity for life of Americans, Polynesians, and Australians, explaining the view, supported by rather striking facts, that the mere approach of civilization is sufficient to lead these peoples to destruction as incorrect.

A subsequent chapter addresses the very interesting topic of mixing and hybrids. In the mixture of different races, the influence of the father usually prevails, though this is not

always the case. Hybrids of different human species are not all subject to the same laws; sometimes, entirely lawless phenomena are encountered. Entire peoples seem to have arisen from an original mixture of different species or are considered hybrid peoples. Certain human types also persist with greater tenacity, such as the Mongols. Additionally, the remarkable and recently known experience of the influence of a previous fertilization by an animal or human as a mother on offspring produced later by a second father is appropriately mentioned, attesting to the author's in-depth knowledge. For example, a mare impregnated by a donkey stallion produces offspring that exhibit some donkey-like traits in subsequent fertilizations by a horse stallion, and similar phenomena have been observed in pigs, dogs, etc. A black woman who once bore a child with a white man later bears children with black men who exhibit some characteristics of the white type, and vice versa. *) Similarly, predispositions or characteristics from a first father can be passed on to children produced by a second father with the same mother. In general, it can be assumed that in the crossing of different races, the lower type is ennobled by the higher in individual cases, although conflicting facts are not lacking. In continued mixing, however, hybrid populations generally do not arise; instead, nature gradually seeks to return to the formation of one or the other of the original races. Regarding the character of the mixed population, despite this experience being highly unfavorable to his theory, Wait must concede that, generally, it is inferior, and that hybrids inherit more vices than virtues from their parents. The negative influence of the hybrid population in the Central American republics, hindering their natural development, is well-known. Nevertheless, Wait does not fully acknowledge the value of these facts and attempts to discredit defenders of opposing views, such as Nott and Gliddon, in an unsightly manner by insinuating that they write out of considerations for slavery! Such a method is convenient to silence irrefutable arguments from opponents and has unfortunately been practiced all too often lately, but it is certainly not scientific. Nott does not consider hybrids viable in the long run, basing this opinion on the most obvious facts, particularly concerning the mixture of very heterogeneous races. Anyone who has lived in America and inquired about these matters knows that Mulattos of Germanic race, without the infusion of fresh racial blood, become extinct in the fourth or fifth generation, and only Mulattos of Romanic race may have a longer and potentially permanent lifespan. As evidence of this latter experience, Wait can only refer to countries like Brazil, which, lying in the hot zone and populated by Romanic races, support this claim. *) Under such circumstances, views on the utility of mixing races are naturally divided. Some see it as an improvement, while others view it as a deterioration. Wait naturally leans towards the former view, but it seems, broadly speaking, decidedly incorrect, and the mixtures of very heterogeneous races must be considered as detrimental as those between closely related bloodlines. Overall, Wait wishes to regard the evidence for the specific differences in the main branches of humanity as weakened by experiences with mixing, certainly without sufficient reason!

**) A Negress who once conceives a child (mulatto) with a white man, later produces children with whites through mating, who always become lighter and more similar to the father, and with blacks, never entirely black but rather brown children.*

Note from the author.

**) The Portuguese show the least aversion to the mixing of African blood, which is why in Brazil % of the free population consists of individuals of mixed race in various degrees, albeit not to the advantage of the country. This newly emerged class, in addition to the pride of white ancestry, only knows sloth, indulgence, and cowardice. In contrast, the Anglo-Saxons and Americans seem to have a natural opposition to colored nations, as they are unable to sustain fruitful offspring with them over the long term. Mulattos in North America rarely have children, and if they do, these offspring die out in the third or fourth generation. Moreover, they are weaker than the Negroes and are only valued at half their price. The Quadroons are*

pale, sickly, very weak, and the Quinterons are very rare and gradually become fully white. In the West Indies, Mulatto women and Mestizos are generally considered infertile, and pure Mulattos mating with pure Mulattos are said to gradually lose all fertility. In Canada, Kohl observed a very unfavorable outcome from the mixing of the French with the Indians, which is quite common there. The hybrids (so-called Metis) are indeed fine in the first generation but already die out in the second or third generation. Büchner. From Nature and Science.

Note by the author.

*As for the age and origin of the human race, Waiß has learned too much through his studies to not decisively distance himself from the banal views of the general public on this point and to align himself with the general perspectives of empirical natural science. Above all, he acknowledges a very high age for the human race on Earth, exceeding the so-called historical times, although he suggests that recent claims, even those regarding the discovery of fossilized human bones, must for the time being be doubted according to his view. *) However, he believes, with a firm stance, that there was no older, ape-like organized human race in earlier times. *) He also strongly opposes the idea of botanical and zoological provinces or so-called creation centers, mainly defended by Agassiz. Nevertheless, Waiß finds merit in the assumption of a single primal pair.*

**) Indeed, these statements gain greater significance through constantly newer findings and discoveries, pushing back the origin of the human species on Earth to increasingly distant periods. As is known, the great scholar Cuvier emphatically denied the existence of fossilized or petrified human bones, and his significant authority held back serious opposition for a long time. In fact, many bones previously thought to be fossilized human bones were later identified as animal bones. The circumstance of finding actual human bones often in caves alongside the bones of so-called prehistoric and extinct animal species could be considered coincidental, although other circumstances do not always support such an interpretation. For instance, Lund found human bones in a limestone cave in Brazil, mixed with the bones of ancient animals; some of these human bones showed partial signs of fossilization. Sir Charles Lyell mentioned, in a speech during the geological section of the British Association meeting in Aberdeen on September 15, 1859, a number of human bones discovered by Aymard in 1844 in the region of le Puy and Velay (Central France), enclosed in a volcanic breccia, which most geologists declared as fossilized. Dr. Schottin also found several well-preserved and undoubtedly fossilized human bones, mixed with similarly calcified animal bones, in the gypsum quarries near Köstritz on the Elster. The most interesting discovery, dating from the most recent times, was made by Dr. Fuhlrott in a rock cave in the Düssel Valley (in the so-called Neanderthal between Düsseldorf and Elberfeld), where he found the skeleton of a human in the earliest stage of human development, declared fossil by Sir Charles Lyell in 1860. Finally, Lartet (Compt. rend. 1860) claims to have found clear evidence of wounds and attempted manipulation on the remains of extinct animal species (such as giant deer, rhinoceros, aurochs, Megaceros hibernicus, antelope horn, etc.) found together with human instruments. Similarly, in Sweden and Iceland, traces of injuries and apparent manipulation were observed on the remains of Bos priscus and a giant deer. *) Perhaps this is initially without grounds. At least, from the communications of Prof. Schaafhausen (Report of the Lower Rhine Society for Natural and Medical Sciences in Bonn on February 4, 1857), it is evident that almost all the skulls found in association with the bones of extinct animals, considered until now as the oldest traces of our species on Earth, exhibit the same primitive, undeveloped, and ape-like formation. Note by the author. He claims to have made observations. Numerous similar finds from earlier and more recent times, previously considered doubtful, especially those of fossilized human teeth, naturally under such circumstances, take on an increased and altered significance. This is especially true as the famous discovery of flint tools in northern France seems to have dispelled all doubts about the great age of the human race. In 1797, cut stones were found at Horne in Suffolk (England) in an undisturbed gravel bed alongside freshwater shells and bones of unknown animals, in a sediment that was deposited before the surface of the land acquired its present form. However, little importance was attached to the discovery. After the finds in France became known, Prestwich went to Horne and was able to obtain two such stone axes on the spot; they were said to have been found in abundance earlier. In 1847, Boucher de Perthes publicly announced his discovery made in the Somme Valley between Amiens and Abbeville, where worked stone tools (flint axes) were found mixed with bones of prehistoric animals in undisturbed gravel beds belonging to the so-called Diluvium. However, Boucher de Perthes could not break through the general prejudice against his discovery until 1859, when A. Gaudry and the Englishman Prestwich, who had come specially from England for this purpose, took up the matter. Both, as well as many others who followed them, confirmed, based on their own investigations, everything that Boucher had found and concluded that man must have coexisted with prehistoric rhinoceroses, hippopotamuses, elephants, and giant deer. It was also established that above the diluvial mother rock, in which the flint axes were found together with the bones of prehistoric animals, three other layers of sediment are present, in the topmost of which well-preserved Roman graves were found. Thus, two geological intervals may have elapsed between the creation of these graves and the making of those stone tools. The number of flint tools found in the meantime over a stretch of about 15 English miles is said to now amount to thousands. The famous English geologist Lyell visited the site and seems to have been convinced of the accuracy of the above information. He believes that a wild tribe of people (from the so-called Stone Age of humanity) must have inhabited this region for a long time and that the tools found are very old compared to the times of history and traditions. The Assembly of British Naturalists in Oxford in 1860 declared that the excavated flint tools undoubtedly originated from human hands, that they were covered with tertiary deposits, and that the formation of this debris required an incalculable period of time not comparable with historical chronology. In the meantime, Noulet (Memoirs of the Academy of Toulouse) found polished three-edged stone wedges in the gravel below the clay at Infernet near Toulouse, together with the bones of cave bears, prehistoric elephants, and other extinct animal species, and Ed. Collomb (Bibl. univers. Archiv., 1860), relying on the discoveries in*

France, speaks in favor of the existence of humans before the ancient glaciers of the Vosges. Also, according to Bronn, fossil remains of humans have recently been found in conjunction with those of diluvial animals under circumstances that hardly allow any doubt that humans lived simultaneously with some of them. Bronn also calculates the age of the so-called Alluvial period or the last geological formation period following the Diluvium, in which we are currently situated, to be 158,400 years, instead of the previous assumption of a hundred thousand years based on the findings of fossilized tree trunks in Louisiana. However, even if one does not accept the application of such a calculation to the age of those flint tools and thereby the human race itself, as there is no strict boundary between Diluvium and Alluvium, and the existence of the aforementioned supposedly prehistoric animals may extend to a more recent time than previously believed, even the opponents (e.g., Nöggerath in his speech to the natural history society of the Prussian Rhineland and Westphalia on May 23, 1861) have to admit the great significance of these finds in relation to the question of the antiquity of man. Westphalia, Assembly from May 20 to 22, 1861) admit that humans are undoubtedly much older than their recorded history. Also supporting this claim are a considerable number of geological findings, which directly demonstrate, rather than conclude, a very ancient age of the human race compared to historical times. "Human remains and tools," says geologist Volger, "are found in soil layers whose formation, according to the most conservative estimates, is fifty or more millennia ago." To cite the most well-known example, human artifacts were discovered thirty feet below the Nile mud, pushing back the Egyptian culture by approximately 17 millennia. Count Pourtalès found human skeletal parts in a rock on the shore of Lake Monroe in Florida, estimated by Agassiz to be at least 10,000 years old. A similar discovery was made near Natchez in North America. In the vicinity of the Gulf of Bothnia (Sweden), a fishing hut was unearthed from significant depth, estimated to be 10,000 years old. In the Mississippi Delta, during the excavation of gas works in New Orleans, human skulls and bones of the American race were found under six different layers of earth, with an estimated age of 57,600 years. Undoubtedly, these discoveries will increase significantly with further excavations. According to K. G. Zimmermann, recently, during the construction of railways in Villeneuve on Lake Geneva, finds were made indicating an age of the people who once lived there of 10,000 years—an estimation, however, still too conservative as they were already in the so-called Bronze Age and had achieved a significant level of culture. Generally, even according to historical records, 5000 years before our calendar, people in Asia and Africa were at a cultural stage that allows us to comfortably add another 5000 years, without which it would have been impossible for them to progress so far (Schleiden). Here, it is worth recalling the remarkable discoveries of so-called pile dwellings recently found in large numbers in Swiss lakes, as well as related findings in the Danish Archipelago and the Jutland Peninsula, which also confirm the existence of an ancient population in Europe beyond doubt. In connection with these scientific findings about the great age of humanity, what we know from the myths or legendary traditions of individual peoples about their own age or that of their ancestors must also be considered. The mythical history of the Chaldeans and Egyptians begins many millennia before their historical timeline, which, for the latter, starts with Menes, the first historical king of the Egyptians, 5-3000 years before Christ. Manetho, the High Priest of Heliopolis, who lived 350 years before Christ, calculates a reign of 6117 years for 375 pharaohs, which, along with the current timeline, adds up to 8322 years until today. Regarding the indigenous inhabitants of Spain (Turduli and Turdetani), Strabo (according to A. von Humboldt) says: "They use the art of writing and have books from ancient times, as well as poems and laws in verse, which they attribute an age of 6000 years." The age of Babylonian star observations known to Aristotle is estimated to be 1900 years before Alexander the Great, and so on. The prehistoric periods of Chinese history even amount to 129,600 years. See also the very recent and detailed essay "On the Existence of Remains of Human Existence in Layers of Earth from the Diluvial Period" by K. G. Zimmermann, in the journal "Natur," 1062, No. 20 and following, as well as the report by Dr. F. Stoliczka on the works and submissions of Boucher de Perthes, (currently the President of the Société d'Emulation in Abbeville) in the session of the Imperial Geological Institute on January 21, 1862, in which it is stated at one point: "For a long time, there was resistance to the occurrence of fossil humans, but the facts have accumulated so much in recent times that all doubts about this are now surely dispelled."

Note from the author.

It is unlikely, and for teleological reasons, that this development aligns well with his theory. According to his perspective, which is certainly that of all non-pietistic naturalists, miracles cannot occur in nature, and humans can only have originated through natural means, not creation. This origin, however, could have occurred anywhere conditions necessary for it were present, according to Wait, not just in the hot zone but likely at various locations. How this development might have occurred more specifically is unclear to Wait, who is also critical of views attributing human origins to a gradual transformation from the immediately preceding animal world. Nevertheless, he generally supports the idea of a gradual organic development law and convincingly demonstrates how various human races are connected through numerous clear transitions and intermediate stages. According to Wait, there are no rigid and sharply defined typical forms that could be considered as distinct species. The classification into large main divisions only serves the purpose of clear grouping. Therefore,

in the interest of his theory, he goes so far as to label considering races as firmly separate types and yet thinking of them as emerging due to external conditions and gradual transformations as a "gross inconsistency." The inconsistency on his part is even greater when he allows the greatest freedom to transformations and transitions within the human race itself but completely rejects them outside of it. After all, the human race is nothing more than a part of the larger total nature and is connected to it through the same threads that bind its individual members together. According to Wait, the absolute immutability of the physical type is nothing more than a prejudice. The existence of completely different people and racial types, in his opinion, can be explained by the fact that a group of people living together for a longer time gradually assumes a common external type due to uniform external influences, regardless of their original elements. While some truth and reality may underlie such a view, its application cannot possibly be extended to such an extent. Wait himself acknowledges that his reasons are not always sufficient, and at the end of the entire natural-historical investigation, he considers the question of the unity of the human species an open one. However, he argues that the unity of the species has more reasons in its favor than species diversity. He considers the question of the unity of descent even more open, which does not coincide with the question of species unity but shares many common points with it. Wait himself, as we have seen, is a defender of species unity and yet a supporter of the majority view on descent, which may raise justifiable concerns for many.

Before Wait transitions from natural history to psychological investigation, he provides some hints regarding the classification of the human race, which can be attempted from a natural historical, linguistic, and historical standpoint. However, none of these perspectives fully suffices for this purpose, and one always encounters a complete disagreement among authors once beyond the three main forms: Negro, Mongol, and European. Beyond these, numerous and numerically divergent racial classifications have been made. The field of linguistic research yields slightly better results than natural science, yet the assumption of a common origin language is a chimera, and there exists an indeterminable number of radically different languages. While the physical examination of humans by Wait provides more reasons for than against the unity of the species, it cannot be considered decisive, so the psychological investigation must be deemed indispensable. This begins with some unjustified criticisms against natural scientists who allegedly only consider the physical aspect of humans and analogously attribute intellectual capacity to head shape! Although Wait admits that the Indo-European and Semitic peoples, distinguished by the best brain development, have always been the essential bearers of civilization, he claims that there is no shortage of conflicting facts. This is followed by a lengthy discussion on skull capacity and its relationship to mental power, which could have been spared the reader if Wait had known that while this capacity is indeed a physical measure of psychological ability, it is not alone but only in conjunction with several other equally important physical factors. Conversely, we agree with the author's opinion that all peoples have experienced a period of absolute ignorance, from which some have developed earlier and others later.

In detail, this investigation primarily focuses on a recently widely discussed and important question: the psychological differentiation between humans and animals. The author's conclusions can be predicted with certainty based on his belief in the specific unity of humans and their strict separation from the animal world. However, these results do not align with the facts and clearly reveal the prejudiced stance of the philosopher approaching the

facts with preconceived ideas. Nevertheless, Waiz must admit many things that have rarely been acknowledged by a supporter of speculative schools. For instance, the perfectibility, learning from experience and reflection, language proficiency, and similar traits are not exclusive properties of humans. The troublesome term "instinct" conceals much of what is genuine mental life in animals. On the contrary, Waiz exaggerates the intellectual abilities of the lowest human races far beyond what they truly are. He presents numerous things as characteristic distinguishing marks between humans and animals, which are not essential attributes to the original and natural essence of humans but rather products of a certain culture and refined conditions, such as greetings, signs of worship or contempt, peace or enmity, attire, adornment, sense of beauty, musical appreciation, social character, sense of property, class separation, attachment to family, land, and nation, etc. An observant and unbiased observer of the mental life of animals will easily find in them the clear traces, indications, and beginnings of all the mentioned things. As for the so-called "religious element," which, according to Waiz, should be absent in animals but never in humans, not even in the crudest natural man, this assertion merely echoes the common opinion. There is a lack of conclusive evidence, although there is no shortage of emphatic assurances regarding it. The facts that Waiz is compelled to present speak against him, even though some of the most striking among them seem unfamiliar to him. In order to maintain his thesis, he is forced to identify "magic" and "witch doctors" possessed by some wild tribes with the religious element—a method that hardly any clear-thinking person would follow. Moreover, for those other peoples where, demonstrably, not even this, thus no trace of any supernatural belief, has been found, he naively assumes that "the religious element probably still won't be missing from them"! Such a method of argumentation should no longer be encountered in scientific works nowadays! In general, Waiz is forced to expand the religious concept in a way that allows everything to be construed from it. He even admits that, for many peoples, religion is nothing more than a belief in ghosts. Therefore, when Waiz claims at the end of his chapter that he has demonstrated a substantial difference between humans and animals, at least we cannot lend credence to this assertion.

Another section deals with the so-called natural state of man, which is again considered from the perspective of the diversity or unity of human species. In the actual perfect natural state, which, as we have seen, extends far beyond historical times, one is said to have never found man. However, it should be possible to draw an approximate conclusion about the nature of man from current experiences. That Weiss dismisses the observations made on the so-called "wild and senseless" natural humans raised in the vicinity of civilized society in forests as having no value is certainly going too far, and a positive proof for the latter assertion will be demanded in vain. But Weiss expressly acknowledges that a so-called natural state must have existed for all humans for a long time and that the language of man, like everything cultured in him, owes its origin to a very gradual process of development.

According to him, the natural man is a mere product of the natural force that brought him into life, thus raw, ugly, uneducated, lazy, without moral motives, without a pursuit of knowledge, unrestrainedly selfish, lacking self-control, without a distinction between good and evil—and thus entirely the opposite of the ideal envisioned by Rousseau and his followers. Indigenous peoples only have three main motives for their behavior: physical well-being, social well-being, and the satisfaction of habit. Their character traits are bad; they are prone to intoxication, a desire for murder, and sexual indulgence, have no concern for the future, and

suffer from deep moral corruption. Often, there is a complete absence of all moral concepts among them, such as with the East Sudanese Negroes. This is followed by many very interesting revelations about the concepts of indigenous peoples regarding marriage, sexual intercourse, love, modesty, clothing, manners, politeness, social relations, taste, or the notion of beauty or ugliness, cleanliness, and so on—concepts that not only differ from ours to a great extent but are often directly opposed to each other. Anyone who still believes in innate concepts of good, beautiful, etc., may seek advice here and hear from Weiss how such a natural man, when asked about the difference between good and evil, initially admitted his ignorance but after some thought added that it is good if others' wives are taken, but evil if his own is taken. One may also learn about indigenous peoples where almost all the things considered sin or crime in civilized states are regarded as virtue and merit, bringing respect or reward. But Weiss goes even further and demonstrates how, even in today's civilized society, there are regions and individuals who still stand entirely on the level of the natural man, such as in France, Russia, Ireland. Weiss also provides examples of the degeneration of Europeans in foreign countries, which, according to him, thoroughly disproves the "innate spirit of progress in the white race"; he does not even consider the white race as superior in terms of moral predispositions. From all this, Weiss concludes once again that there are no specific differences among people regarding their intellectual life, and that every people possesses the capability of progress towards higher culture. However, this progressive culture gradually produces a race of individuals with improved external and internal, physical and intellectual abilities, paving the way for endless progress. In particular, Weiss vehemently rejects the opinion that certain races have the exclusive privilege of cultural capability and refers to the well-known distinction between so-called active and passive ethnic groups as a schematic view that does not align with the facts. While one may agree with him in this latter respect, it is also undeniable that the author himself allows his schematic view to lead him too far beyond the bounds of reality. At least, his assertion of the unconditional cultural capability of all human races hardly aligns with the known facts, which clearly show that there are human races that can only be somewhat educated into culture with external help but, once abandoned by this help, quickly revert to the old primitive state. Moreover, there are other races that can develop culture from within, but once they reach a certain stage of this culture, they become stable. Finally, there is a third type of race that we see at least in an incessant progressive cultural movement. However, just like everywhere else, these races do not form strictly separated divisions but are connected by numerous transitions and intermediate stages, and thus, the schematic classification is rightly rejected, it hardly needs to be added.

Finally, the diligent author takes on the gradual progression from the state of nature to civilization through the various cultural stages of humanity, uncovering the determining factors involved. Migrations, wars, the mingling of different peoples, agriculture, property, trade and commerce, religion, and the advancement of knowledge are specifically mentioned. However, with regard to religion, Waiz is compelled to admit that it often has a significant impact on intellectual progress. According to Waiz, the transition from the state of nature to civilization is gradual and slow, and the inclination toward civilization is more cultivated than innate. There is no inherent thirst for knowledge in uncivilized nations, and there is no original tendency toward progress. While the idea that higher races are destined, almost by divine order, to displace lower races from the Earth, as taught by the American school under Agassiz, Morton, etc., rightfully provokes vehement disagreement from our author, who

deserves equal credit for his intellect and heart, the factual result, whether or not such a destiny exists, is likely to be what the American school desires.

In a concluding retrospective, it is reiterated that even the greatest cultural differences among humans are only gradual, and the question is posed whether the goal of humanity is a universal, uniform civilization across the entire Earth. The author, with commendable impartiality, acknowledges that civilization does not necessarily elevate the sum of well-being, and he interestingly recalls well-attested accounts of small, self-contained, happy and peaceful communities where crime, punishment, misfortune, and misery were unknown. Nevertheless, Waiz rightfully sees civilization as the general destiny of humanity but adds that no people or race can be originally destined for civilization or condemned to barbarism. The tropical regions alone, due to their enervating influence, make it impossible for the peoples living in them to achieve a high level of intellectual elevation. Under all circumstances, a people must undergo countless transitional stages to civilization; a sudden elevation to it is impossible.

With this, the book by Waiz concludes, which, as the title indicates, is designed on a large scale and only forms the initial part of a more comprehensive work. Some general remarks that, similar to the beginning of this critical exposition, come to mind at its conclusion are:

The shift towards empirical experience, which now, after the "pure thought" has proven inadequate for solving philosophical problems, begins to assert itself in philosophy, and which particularly stands out in the present work, deserves the fullest recognition of all those for whom the pursuit is not about showmanship but the truth. This direction, evident in Waiz's book, although its author is still firmly entrenched in philosophical shoes and tends to see the facts more in terms of his own preconceived views than unadulterated reality, bears rich fruits. It compels the author, with a kind of internal reluctance, not only to acknowledge many views of the so-called materialistic or, better said, empirical school as essentially correct but also to contribute new building blocks to their philosophical foundation. However, when he finds himself in open contradiction with these views, he is mostly forced to distort the facts, seeing more with the eyes of a philosopher than those of a natural scientist.

It is regrettable that Mr. Waiz, driven by his role as a philosopher, chose to formulate his entire question in a way that does not correspond to the real need. The question of the unity of mankind remains idle and has no prospect of being decisively answered as long as the concept of species cannot be firmly established. Therefore, the question has never been formulated in this manner by empiricists in the scientific field. They always argue only about the more practical and commonsense question of the unity or multiplicity of descent. Although Waiz correctly separates these two questions, he cannot prevent them from repeatedly coinciding, and there seems to be no compelling reason why he wants to combine the unity of the species with a multiplicity of descent. If the differences among human races can indeed be explained by gradual changes in the same physical and mental type, and if the theory of botanical and zoological provinces is incorrect, why then assume a multiplicity of descent? But if the opposite is true, why not admit that the human race has appeared in several fundamentally different types from the outset? Even though the frequently debated

question of the unity or multiplicity of human descent currently offers as little prospect of a definitive solution based on real evidence as the question of the unity of the species, we believe Mr. Waiz would have done better and satisfied the real need more by maintaining the old formulation of the question. Nevertheless, we must not fail to point out to him in the end that, despite the many proofs he has diligently collected and presented, the views of actual natural scientists seem to lean more and more towards an opinion opposing his own. As Vogt notes, almost all well-travelled natural scientists appear to be on the side of defenders of the multiplicity of the human race. However, this does not prevent anyone interested in science from being very grateful to the author for what he has provided, seeing it as a real and significant enrichment of a previously neglected or neglected part of science.

11. Towards the Philosophy of Humanity

(1860)

Philosophy is currently in a peculiar state of transition and, consequently, perplexity, as its old ways have become stagnant, and the watchword for the new has either not been found or not sufficiently permeated. The old formulas no longer captivate or astonish anyone, as their shortcomings have been exposed, and the new ones require means for their application, which will only be possessed by a younger generation. Hence, despite the noise in other literary fields, there is a relative silence in this one, occasionally interrupted by polemical outcries against bold innovators and intruders—or by works that do not produce anything new but merely reprocess what has come before. In such a period, even the slightest efforts to propel the stagnant development forward deserve attention. Such an effort is evident in a recently published pamphlet by Dr. phil. Eduard Löwenthal on "the social and intellectual reformation of the 19th century, as the cultural-historical focal point of the present time movement" (Frankfurt a. M., Bechhold). Although it promises much more through its title than it can deliver in 52 octavo pages, it may still serve as a milestone in the philosophical developmental path and perhaps more so due to the vigorous reformist sentiment expressed within. If the author were to define his task more precisely and narrowly in future occasions, his honest struggle against superstition and intellectual impoverishment would undoubtedly gain effectiveness. His demonstration that morality is independent of the church and his indignation over the Mortara affair will surely find agreement from anyone. The author perceives the goal of contemporary humanity in Humanism and Naturalism, considering the free-religious communities destined to mediate the transition from Christianity to these worldviews. He does not contemplate a violent overthrow but seeks to "reach humanity through humanity."

His polemic against the death penalty and war deserves more applause than his somewhat peculiar proposal to compensate for the loss of individual continuity after death, brought about by recent philosophy. This involves establishing a precise personal chronicle at every location, divided into an honor and a vice chronicle. As a humane philosopher, the author should have considered that the classification into virtuous and vicious individuals belongs more to a childlike theological perspective than to a human-philosophical one. In actual philosophy, the author adheres to materialistic views, recognizing no spirit without a body and rejecting current efforts to combine transcendental philosophy, localism, and realism as unsuccessful. Indeed, these efforts exemplify the proverb that one cannot serve two masters simultaneously. However, in his belief that he has found the bridge between mind and body and demonstrated the genetic development of the former from the latter—fulfilling one of the greatest and, until now, entirely insoluble tasks of philosophy—the author has surely deceived himself. A more thorough study and rigorous self-examination will likely lead him to relinquish this belief. In some psychological concluding chapters, egotism is attempted to be presented as the main driving force behind human actions and virtues, recommending a "humanized egoism" as what individuals should strive for in life.

The very ambitious author has already published several volumes of lyrical and dramatic poems and, if his abilities keep pace with his aspirations, will undoubtedly contribute something commendable in the future.

12. Materialism, Idealism, and Realism.

(A. Cornill: "Materialism and Idealism in their present developmental crises". Heidelberg 1858)

(1860)

A book that sets out to reconcile the increasingly prominent contrasts between the two main directions in philosophy, materialism and idealism, in a third or higher unity! Although it is already to be presumed from the outset that the forces of even the most capable individual will fail in the face of the magnitude and difficulty of such a task, the attempt to solve it offers sufficient interest to become more acquainted with the author's views. In the introduction to his book, what interests us most is the philosopher's open confession that philosophy is currently in a crisis, though outwardly quiet, yet highly significant — a crisis that the author of this task earlier considered a necessary consequence of the rapid flourishing of empirical, especially natural sciences. On one side is idealistic philosophy, on the other is materialistic philosophy; but according to Cornill, both camps show clear crises that must eventually lead to breakthroughs and the unification of both into a common realistic philosophy. Materialism unilaterally takes external experience, while idealism unilaterally takes internal experience as the starting point for philosophy and for the true and complete essence of things. This contrast culminates mainly in the two scholars, Loge and I. H. Fichte, who, in their discussions, fall from materialism into idealism and vice versa, although in both cases, the realistic element soon proves to be the only viable one. Highlighting this breakthrough of a realistic worldview and guiding philosophy towards the path of the so-called inductive method is Cornill's task and intention. According to him, an inductive philosophy of science reconciles the contrast between sensationalism and speculation. Irregular phenomena in the history of our current philosophical development, such as Schopenhauer, must also be interpreted in this sense and viewed as transitional formations from an idealistic to a realistic worldview.

The first of the three major sections into which Cornill has divided his book seeks to briefly present philosophy as a natural science and demonstrate that neither presupposed beginnings nor inner perceptions of our minds, commonly referred to as higher intuitions (as believed for so long), can lead us to philosophical knowledge. According to Cornill, the main flaw of Hegel's philosophy lies in this erroneous belief. Even on the grounds of inner perceptions, only the inductive method is possible; only in it can empirical observation and speculation be easily reconciled, which is why philosophy must henceforth be regarded as inductive or natural science.

In the second main section, the author attempts to point out the developmental crises he indicated within materialism and idealism, specifically in lectures such as Meher's, debating body and soul. Initially, materialism is targeted, and after distinguishing it in a very subtle manner into so-called monistic-idealistic and dualistic-spiritualistic materialism, various peculiar things are attributed to it, of which the materialists themselves, in our opinion, know little or nothing. Indeed, for those who frequently read pamphlets against materialism, it is amusing to see how each opponent forms their own and divergent conception of this formidable enemy and constructs a puppet shaped one way or another according to their own imagination, onto which they then relentlessly strike until nothing of it remains. The main objection against materialism is once again the old and repeatedly stated one, that it is

incapable of explaining the facts of mental life from matter and that it is inconceivable that unconscious substances produce consciousness. However, materialism has never attempted or wanted to make such an explanation, and as for consciousness, the doctor knows that a few drops of chloroform or bloodletting are sufficient to make it disappear, and a little shaking and jolting are enough to bring it back. How matter manages to produce consciousness or even think can be entirely indifferent to the materialist who regards thinking as an activity of brain substances. For what serious reasons would one derive the right to deny thinking ability to matter in certain states? Can matter fall to the Earth," exclaims Schopenhauer, so it can also think!" *)

*) *The assertion that "matter cannot think" is a claim frequently asserted in almost all writings against materialism nowadays, but it is never heard to be proven with certainty. In truth, it is nothing more than a mere assertion, stemming from an unclear dualistic feeling rooted in our flawed education. It is in no way understandable why, alongside its "physical" forces, matter should not also possess "mental" powers and why the matter in the brain, combined and moved in a specific way, should not be capable of thinking and feeling. With our limited knowledge, we can only perceive the most imperfect of the possible capabilities of matter and have no idea of what else it may be capable of depending on the states or conditions it encounters. To mention just something known to us, for example, lightning melts iron wires of two lines thickness in a ten-millionth of a second! During this time, the wire must have passed through all temperatures up to the melting point—a process beyond our comprehension. Through the newly discovered spectral analysis, one can demonstrate the presence of one three-millionth of a milligram of substance (e.g., salt) in the air. A milligram itself is only the thousandth part of a gram, the smallest French unit of weight. Such a particle lies beyond all the limits of our perception, even if our microscopes were to refine a thousandfold. Consider also the astonishing and almost incomprehensible effects of light or electricity, which travel 40-60,000 miles in a second, and all of this only with the help or as an expression of moving matter; the wonderful powers of plant or animal seeds, and so on and so forth.*

Note by the author.

The true nature of the soul, which philosophers have always talked about so much, cannot be explained by materialists any more than by others. Spirit and matter, taken by themselves, are only empty abstractions; it is only in their union that they provide objects for observation. However, according to Meyer Cornill, idealism does not explain the essence of the mind any better and, when dealing with these questions, is increasingly pushed towards materialistic views, similar to how materialism considers idealistic problems. The entire discussion demonstrates how divergent and untenable the views expressed by philosophers so far about the nature of the mind and its relationship to the body are. These views vary between monism, dualism, materialism, and spiritualism, and all attempts at explanation so far have led to nothing. Finally, Mr. Meyer himself concedes that we will never know how body and soul are connected and what they truly are at their core. He acknowledges the materialist's right to say that matter thinks without explaining how, just as the idealist does not comprehend how the immaterial soul thinks, influences the body, endures with it, etc.

If, moreover, Mr. Meyer believes he can present facts to refute the opinion that mental life depends on the material conditions of the brain, such a belief can only be explained by a lack of anatomical and physiological knowledge. Cornill, faithful to his role as a mediator, finds both directions one-sided, labeling materialism as the "absolutism of empiricism" and idealism as the "absolutism of speculation." He accuses one of not being able to determine the essence of matter itself and the other of not being able to determine the essence of the mind itself. He seeks to reunite both in realism or, more precisely, in "indefinite realistic monism." According to this theory, both mind and nature are just different manifestations of the one absolute substance, discovered as a so-called "metaphysical hypothesis" arising from an epistemological dualism of external and internal experience. However, we do not know how mind and nature are conditioned in that substance or how both relate to each other in the

essence of humans. Therefore, realism stops at this point, calling itself "indefinite." From this realism, Cornill even finds a transition to belief, religion, Christianity, and God, achieved through an "unconsciously occurring inferential process." (!) All things are only revelations of an inherently unfathomable real absolute substance, reconciling mysticism and the philosophy of faith, as well as the results of inductive research, and aiming to integrate empirical and speculative knowledge. However, the author cannot specify what this "substance," meeting these significant requirements, actually is, apart from calling it a "metaphysical hypothesis." Therefore, at the end of his discussion, we do not find ourselves enriched in scientific knowledge but rather faced with an increase in the countless hypotheses of speculative philosophy by one more.

In the third and by far the largest main section, the "Contradictions of Modern Anthropology" are presented, primarily embodied in the two thinkers J. H. Fichte and Lotze, with particular emphasis on Lotze's pamphlet against Fichte as characteristic. According to Cornill, both thinkers continue the contradictions between empiricism and speculation on philosophical grounds, but in a way that, after "the penetrating insights of the natural sciences overcame the earlier dogmas of philosophy," explicitly places them on the ground of inductive research. They attempt to establish a science of nature concerning the human soul. Both no longer believe in forces not bound to matter. However, they stand in opposition to materialism in that they attribute only an apparent significance to matter, differing from each other in that Fichte aligns with a dynamic worldview, while Lotze aligns with a mechanical worldview. Both are dualistic regarding the relationship between mind and matter.

In the first subsection of this section, the atomic theory is discussed, highlighting the particular inclination of our time to explain natural phenomena through atomic theories. According to Cornill, not only natural science but also philosophy cannot escape such theories anymore; they are an empirical and speculative necessity. However, philosophers' atoms differ significantly from those of empiricists and find their true foundation in the philosophical distinction between "appearance" and the "thing-in-itself." The subsequent discussion, however, demonstrates how little philosophers are clear among themselves about their atoms and the "essence of the real," revealing the inadequacy of speculative methods in these matters, as seen in the question of the soul. Fichte's internal contradictions and philosophical "arbitrary acts" are pointed out by Cornill himself. Lotze is also unclear, causing Cornill to doubt whether he is entangled in a real or apparent contradiction (p. 105). Thus, this section does not yield any real gain, prompting us to move on to the second subsection, which undertakes the discussion of the relationship between mechanism and life. Again, mechanical and dynamic worldviews sharply oppose each other; however, according to Cornill, despite all efforts, both cannot surpass an empirical dualism, compelling the theory to progress toward a unified explanation. The question is raised whether life is an unknown cause of mechanical phenomena or vice versa, whether mechanical phenomena are causes of life. Naturally, the much-criticized and discredited concept of "life force" plays a central role here. It seems to be a darling of philosophers, one they are unwilling to lose at any cost. The old accusation against materialism is again hurled, claiming that it is incapable of sufficiently explaining the phenomena of life from the effects of inorganic forces, an accusation that means nothing because materialism has never undertaken such a task. If he could provide that explanation exhaustively, all debate would indeed come to an end. However, he can only — and this is sufficient for the negation of vital force — demonstrate that within the organic, no

other natural forces can be active and, as far as our experience extends, are active, than outside of it. The distinction between organic and inorganic chemistry, which, according to Cornill, materialism wrongly seeks to abolish, is currently called by the chemist Schiel, "nothing more than a conventional tool for classification that does not correspond to the phenomena at all and that we only retain for the sake of convenience." In the dispute between Loße and Fichte over vital force, both are again shown to have internal contradictions, with Fichte being accused of unreconciled opposites and the juxtaposition of them, as well as uncertain oscillation between sometimes monistic and sometimes dualistic ideas. At times, he is said to want to base everything on experience, then again to start from purely a priori assumptions. Loße also falls into contradiction with himself, as he wants to explain everything empirically-mechanically on one side, and on the other hand, brings in supernatural elements and indulges in purely speculative and spiritualistic views. Spieß and Virchow also enter the scene, and, like Loße, are supposed to have hidden idealistic elements and tendencies despite their materialistic opinions. Virchow, however, is said to mediate the contrast between materialism and idealism the best. The whole discussion becomes somewhat unclear because it combines the question of vital force with the question of the essence and origin of organic form partly and also commits the same mistake as Liebig in his fight against materialism, not distinguishing enough between life and vital force. Materialism itself is hardly touched by it in its views; for, as Cornill believes, it initially wants to explain nothing but to demonstrate the groundlessness of the concept of a specific organic force. It knows no opposition between dead and living nature because it knows that even inorganic nature has a life, which only differs from organic life by a different direction and greater slowness of inner movement. It knows that natural science cannot even draw a specific boundary between dead and living nature, at which lithophytes, nullipores, and corals are transitional forms capable of being delineated. Life, according to him, is only a particular and, in detail, still unknown form of motion, initially communicated to the cell and propagated from there, similar to the mechanical movement of celestial bodies, which, once set in motion by an unknown impulse, continues to propagate for eternity. However, this organic movement, once initiated, proceeds no differently and cannot occur otherwise than through the mediation of ordinary natural forces and the known somatic substances. It follows, therefore, that there can be no "vital force"!

Finally, Cornill once again assumes his mediating role in this matter and seeks to reconcile both opposing directions in his realistic hypothesis, which considers external life as a mere manifestation of an inherently unknown or latent life. What this actually means, if not a simple repetition, is unclear to us; what this hypothesis gains or explains, especially in relation to a retrieval of Kantian doctrines, is even less clear. The term "latent life" is associated with a completely different and very specific concept in physiology, thinking of experiences long observed in plant seeds and more conspicuously in certain lower animals and plants themselves; however, latent life in the sense of speculative hypotheses is unknown to physiology.

In the third subsection of the third main section, the relationship between life and consciousness is discussed, and self-awareness in the sense of theoretical philosophy is presented as a main defense against the encroachment of materialistic views. Materialism is once again shown contradictions and idealistic crises in this matter, specifically demonstrating these issues in the views of the author of this essay, with Mr. Cornill making

careful efforts to identify not only a so-called "epistemological" but also a "metaphysical crisis." The author refrains from refuting because he has grown tired of repeating the same things forever and assuring his opponents that he did not intend to establish a "solely salvific" system of materialism or replace the old dogmatism with a new one. He cannot help but note that Mr. Cornill, in the section discussing the relationship between consciousness and the activity of the brain, may have intentionally misunderstood him and that only the activity of the brain, which Mr. Cornill distinguishes in his sense as psychological from physiological, should be discussed. For the materialist, such a separation in the manner of Mr. Cornill is entirely inadmissible; for him, the physiological activity of the higher and thinking parts of the brain is simultaneously their psychological activity. Only the nourishment of an organ independent of its function can occur without visible manifestation of its activity. The brain is in the same relationship as all other organs of the body, and Mr. Cornill will surely not assume that the author did not know that the brain is also nourished during sleep and unconscious states or that it possesses parts that are only organs of unconscious nerve actions. On the other hand, a genuinely mental activity of the brain without consciousness is indeed inconceivable, and facts proving the contrary would have to be presented. At least, according to the author's opinion, all phenomena related to sleepwalkers, sleep-drunk individuals, the mentally ill, chloroform-intoxicated persons, those with fevers, delirium, brain injuries, etc., can be attributed to a weakening or perverse direction of consciousness, but not to a complete absence of it. In general, the use that philosophers consistently make with great emphasis on the fact of consciousness and its so-called unity, compared to materialistic views, is highly unjustified. Because if there is any property of the soul that strikingly documents its dependence on the material conditions of the body, it is, as indicated earlier, undoubtedly consciousness. Even the most humble creature possesses consciousness and self-awareness, and if one cuts a polyp or a worm, each piece continues to live as an individual with its separate self-awareness. An infusorian, reproducing through division, within moments creates a double self-awareness through separation of its body. A blow to the head, a few drops of chloroform, or a fever can either rob a person of consciousness or provoke unbridled leaps in it. Deadly nightshade raises the fallen Indian and reveals to him the most dazzling phenomena, while the Siberian mushroom makes a person insensitive to pain and makes a straw appear as an insurmountable obstacle. Hashish dispels worries, induces merriment and cheerfulness, and in higher doses produces delirium and madness. *) Opium transports the Oriental into the sweetest dreams, and wine puts the Westerner in a mood where he is capable of losing any serious consciousness of his current situation. According to Spiess, consciousness is not the actual basis of all mental activities; instead, representations, thoughts, sensory perceptions only appear in consciousness. Schopenhauer calls consciousness a highly simple and limited thing. How consciousness arises in the brain can be fairly indifferent to the materialist, and they can consider thinking and consciousness as a special kind of material motion, specifically of brain matter, without being obligated to explain in detail what this movement is like. Therefore, when Mr. Cornill, after having believed to demonstrate contradictions and idealistic crises to materialism, wishes to prompt an in-depth investigation into the nature of consciousness and the soul, such a demand can only be explained by a misunderstanding of materialistic perspectives. What does materialism care about the true nature of the soul and consciousness? For now, it is sufficient for it to have demonstrated the necessary and proportional dependence of mental manifestations on the materiality of the brain, as well as the objective and gradual emergence of the soul and self-

awareness through facts. If philosophy, based on this once acquired knowledge, will be able to offer something durable and not contradicting the facts about the nature of the soul, then surely all parties will be grateful to it. So far, unfortunately, there is little prospect for this, and Cornill's book makes us painfully feel this on every page. After successfully navigating through this entire chaos of conflicting opinions, if one impartially asks whether they have become any wiser than before, the answer must be no, accompanied by the uncomfortable realization that, despite all the scholarly discussions by Mr. Cornill and the authors he cites, nothing can be definitively asserted about all these beautiful things. At the point where materialism has temporarily anchored itself, nothing further will be proven with solid grounds for the time being. From this point on, opinions will diverge not based on the ground of positive science but rather according to individuals' general intellectual and belief orientations. Some will see the brain only as a condition, while others will perceive it as the basis of psychic activities. The third group, holding onto old speculative-spiritualistic views of an independent, immaterial soul entity regardless of all facts, is not considered. It is solely the merit of the much-maligned materialism that philosophy is now compelled, with compelling force, to descend to the ground of reality in this and many other matters. It can no longer be accused of doing something useless or repeating something known. Just look back a few decades in the history of philosophy and psychological endeavors to properly appreciate this merit.

**) H. Emmerich recounts that the Oriental enjoys hashish to evoke visions that transport him into paradise. It induces cheerfulness, a rapid flow of ideas, fantastical images of the most pleasant kind, and a tendency to divulge the most secretive thoughts. Dr. Berthault perceived even ordinary music as something magnificent, as music during the hashish intoxication appears as a celestial harmony of tones. One experiences a sense of boundlessness and feels as light as if carried away by a gentle breeze. Someone in the company believed they had transformed into a locomotive, etc.*

Note from the author.

So much more satisfying for the calmly scrutinizing observer is it when, after dismissing materialism, he hears Mr. Cornill proceed to demonstrate contradictions and materialistic crises to idealism in the question of consciousness, revealing an endless confusion of opinions everywhere. Once Fichte's great inadequacies have become apparent, Lodge, who endeavours to take a more materialistic stance on this issue, has inner idealistic crises pointed out to him. In his views on consciousness, vacillation, uncertainty, contradiction, and momentary slackening in the sharpness of investigation are criticized. It becomes quite clear again with Lodge that one cannot serve two masters at once. The Cornillian reconciliation is once again sought in the familiar unknown "real substance" or the "indefinite realistic monism." The term "indefinite" would perhaps be better expressed as "undefinable."

Under these circumstances, the fourth and final subdivision of the third main section, which constitutes the remaining content and conclusion of the book and bears the heading "Consciousness and Soul," brings us nothing new but essentially repeats what has already been presented. It is only endlessly recurring variations on the same theme, which, for this reason alone, lead to no conclusion because the question is continually posed too generally and vaguely, focusing more on the general relationship between mind and matter than on that between brain and soul. The inexplicability of the nature of matter is repeatedly ridden as a showpiece against materialism, and Redtenbacher's atomic theory is unjustifiably entangled in it. Other empiricists, such as Pflüger, Ludwig, Eckhardt, Spieß, etc., are also taken on and belittled. But everything presented is of even less significance, as Mr. Cornill himself finds it necessary to explicitly admit so-called "psychic dynamics" to matter and align himself with

Virchow's confession that we are ignorant of the nature of consciousness and that philosophy and science have not progressed beyond acknowledging this fact. Throughout, Mr. Cornill refers to inexplicabilities, proving nothing; for the essence of empirical philosophy is precisely not to go beyond these inexplicabilities, as speculative philosophy always does, but to initially adhere to the given. In his polemic against the author of this essay regarding the lack of animation in the embryo, Mr. Cornill overlooks that matter not only falls into very specific states but also must be determined in a certain way through external influences to produce psychic effects. So, if the unborn or newborn child does not yet think, this is due to the absence of those conditions about which Mr. Cornill had ample opportunity to read in the author's work. Even if he believes he has again demonstrated contradictions to materialism here, according to his own presentation, the contradictions that burden idealism and speculative philosophers in these matters are far greater and incurable. Particularly, the professor Loße, regarded as an authority in these matters despite his mechanistic inclination, is shown to have a total relapse into idealism and such a contradiction with himself and his entire philosophical direction that Cornill has no qualms about speaking of a "departure of the sharp-minded thinker from himself." Loße struggles in lengthy discussions with the impractical question of whether the soul is "an unspatial, supernatural substance, or an extended being." Alongside Loße, several other speculative thinkers emerge, in whose views cited by Cornill, contradictions and uncertainties abound once again, and we see them operating everywhere only with those general and empty concepts against whose philosophical abuse Schopenhauer has fought so relentlessly and with such annihilating mockery. Finally, all contradictions dissolve again for Mr. Cornill in his real substance, leaving undecided whether the real substance of the soul should be perceived as material or ideal. It is not explicitly stated whether this remarkable substance is identical to Wagner's soul substance; one only learns that the realistic hypothesis resolves everything and provides uniform protection for empiricism, speculation, and belief.

Even the so-called "religious needs" (which have indeed become so urgent in modern times that without them, a position as a philosophical professor would be impossible) slip away with Büchner. And even the "immortality of the soul" finds a lifeline in the "realistic hypothesis." A hypothesis that accomplishes so much at once becomes suspicious just by this fact, even if it should bear fewer marks of philosophical unreality. Now, finally seeking to recall the impression that the entire writing must leave on the mind of an unbiased reader, it is the old, frequently felt and not often enough acknowledged. Philosophers continue in futile efforts to seek something that cannot be reached by us, i.e., the essence of things, and must, in such pursuits, become speculative, unclear, and hypothetical, even with the best intentions. Meanwhile, empiricists always start from what we know entirely or to a certain degree, leaving aside what we do not yet know. Certainly, one might argue against them: Hence, you have no right to speak on our behalf — but this is, in a way, self-incrimination, withdrawing philosophy to the realm of ignorance. One should ask oneself, what has this philosophy of ignorance achieved so far compared to that which is built on the basis of the attainable, the finite, or empirical material? Nothing, while the latter has at least achieved something. It will readily be admitted that this empirically philosophical direction, being still young, suffers from many errors or shortcomings; but could it be otherwise at the beginning? Its carefulness and rigor towards itself will increase with each passing day, and the specific limits to which it believes it is justified in going will be increasingly defined. Empiricism denies only the life force, while philosophy seeks to explain life; empiricism accepts atoms as a transitional stage

to further knowledge, while philosophy establishes an atomic theory and seeks to determine the essence of the real from it; empiricism accepts the constancy of matter and force as facts, while philosophy dismisses both for speculative reasons; empiricism seeks to decipher and, to the extent possible, interpret the factual relationships between body and soul, while philosophy fantasizes about the essence of the soul; empiricism seeks to grasp the origin and essence of the organic world and humans from the facts and the painstaking acquisitions of science, while philosophy claims to already know all this from inner intuition, and so on. In short, empiricism seeks truth, and philosophy seeks a system. The empirically educated mind has long lost the sense for most of the speculative debates with their dark and convoluted expressions, always resting like a twilight over them and concealing the inner deficiency through the appearance of erudition; it is repelled by all these dark and lofty modes of speech and does not understand how one can constantly labor with things that lack any prospect of a real solution. Instead, it ardently pursues questions that have become more or less accessible to our knowledge through the progress of empirical sciences. However, it is clear that much needs to be done in the connection of this knowledge through philosophical thought and its general utilization in the philosophical sense. In the realm of absolute spirit, it is certainly more comfortable to dwell, and like swarms of mosquitoes dancing in the sunshine, philosophers happily frolic in the sun of pure thought, while in the camp of empiricists, the sweat of labor drips from the foreheads of researchers. Where is a comparative animal psychology, following the example of empiricists who have long created comparative anatomy? Where are the specialized psychologists who use the experiences of anatomy, physiology, and forensic psychiatry inductively and with sufficient knowledge of those experiences to draw their conclusions? Where is a doctrine of man based on truly empirical foundations? The slightest beginning of a comparative animal psychology, for example, would deserve more gratitude than all philosophical speculations on the nature of the soul since the beginning of history.

And what, after all this, has Mr. Cornill's book, despite its 420 pages and its learned philosophical demeanor and expression, contributed to the progress of science? In the matter itself, almost nothing; only the confession in the mouth of the philosopher is valuable, that philosophy should abandon the previous path and embrace the inductive method. "Speculation without empiricism," Mr. Cornill finds himself compelled to say, "is unthinkable," and according to him, even in the empirical sciences, speculative minds, i.e., those who know how to interpret empirical facts, play a groundbreaking role. Certainly! And for what reason, then, is there such relentless philosophical fanaticism against those who make such attempts? Yes, Mr. Cornill contradicts himself more than the empirical direction itself desires, as he demands that philosophy should henceforth be treated as a natural science. Philosophy can never become a natural science itself, even if it adopts its method; because its subject is larger, its goals broader, its entire task different. Only this is true, that if it continues to disregard the results of empirical science, it works towards its own demise. Mr. Cornill may not want this, but will is better than action in his case; for on the inductive path he so vigorously defends, he certainly cannot have come to the discovery of his "real, indefinite substance." If, as philosophy asserts, there is a philosophical "thing in itself," it cannot be taken into account with our ideas, as we cannot recognize it, neither metaphysically nor, as Mr. Cornill wants, "epistemologically," and the entire distinction he makes between inner and outer experience ultimately only amounts to a rescue and restoration of a seemingly abandoned speculative position by himself. In place of the "pure reason," "inner experience"

has taken over, with the help of which every philosopher following in the footsteps of Mr. Cornill will operate no differently than before with his absolute thought. Systems, of which Mr. Cornill distinguishes so many and in so many nuances, do not matter at all in the whole question, but solely and exclusively on philosophical thinking striving for truth and reality. That a so-called realistic philosophy is the only thing that can emerge from the philosophical struggles of the present and provide a lasting satisfaction to our philosophical needs must be completely and fully conceded to Mr. Cornill. But this realistic philosophy must also deliver on its promises and not, as with him, immediately deny its own principle with its first steps. Therefore, one can praise his writing for correctly identifying the task but must simultaneously add the criticism that it attempted to solve this task in a manner contradicting its own principle.

13. Professor Agassiz and the Materialists

*[Contributions to the natural history of the United States of North America, by L. Agassiz. First volume, part I: Essay on classification. (Chapter first, Section I- XXXII) *)]*

(1860)

The above-mentioned writing, in possession of the author of this essay through the voluntary kindness of the author himself (who currently resides in Cambridge near Boston in the United States, bearing one of the most renowned names in natural science), presents not only a special interest for the learned but also for the educated world in general. It delves into a question in its first chapter, spanning 32 sections and 136 pages, in a very thorough manner—a question that touches not only naturalists or philosophers but anyone who takes an interest in the general scientific interests of humanity. The question at hand is the causes of the origin and development of the organic, particularly the animal world on Earth. Since the research in the history of the Earth has shed unexpected light on those immense periods that our planet has already passed through in its gradual development, this question has moved from its previous perplexing mystery more and more into the illumination of scientific perspectives. It promises a solution that, while not definitive, approaches the truth to varying degrees. It is noteworthy when men of true science begin to engage with this question and openly acknowledge that a simple disregard for such matters or a passive delegation to theology or philosophical speculation dominated by it no longer suffices for the spirit of the times. It is almost the first time that such a respected authority in natural science, like Mr. Agassiz, addresses this question in such a serious scientific work as the present one, thoroughly examining it from general perspectives and expressing his opinion in a decisive manner. Certainly, this opinion is one that starkly contradicts the most commonly held views expressed by naturalists thus far and, even though theology is nowhere invoked in its argument, ultimately believes it can achieve a result in substantial agreement with the church's ideas about the history of creation. Such a stance naturally most profoundly affects the teachings of the so-called materialistic, or more appropriately, naturalistic school, whose fundamental principle lies in the naturalness of all earthly processes in the past and present and their independence from supernatural, arbitrarily acting influences. This school is so convinced of the correctness of this principle that it hesitates not to confront even a man like Agassiz in his own field and demonstrate to him his errors, which, although not based on ignorance of the relevant facts this time, rest on an incorrect interpretation of them.

**) Contributions to the Natural History of the United States of North America by L. Agassiz. First volume, first part: Treatise on Classification. (First chapter, Sections 1—32)*

The entire Agassiz dispute can be considered, to some extent, as a philosophy of the living and extinct animal world. It proves, at the very least, that a subject, which some naturalists still consider the domain of idealists or fantasists among scientists, is not only capable of genuine scientific treatment but also in need of it. It demonstrates that even from the perspective of strictly scientific individuals, it is becoming apparent that in natural research, it is not sufficient to continually accumulate materials and building blocks. Rather, it is time to consider how far this accumulated material can be used to construct the cohesive structure of the mind. While unfortunately the final results to which Mr. Agassiz has arrived may lack philosophical soundness, it is evident that he belongs not only to the collectors but also to the naturalists who assess and value the collected information from higher perspectives.

Even in cases where one may disagree with his final conclusions, Agassiz, in his work, opens up many interesting and important viewpoints. He allows us to take deep and insightful glimpses into the nature of organic phenomena. Thus, one must be grateful to him, even if not in agreement with his ultimate deductions. Despite taking a firm stance against the materialistic views of modern times, Agassiz's work provides a considerable satisfaction for the defenders of these views. Opponents, who have asserted that these views hardly require a serious or scientific refutation, find in Agassiz's weaknesses, despite his remarkable knowledge, the best evidence for the strength of the opposing opinion. Before, however, the author of this article embarks on a refutation of Agassiz's argumentation, he will attempt to provide the reader with the most concise picture of the thought process followed by the famous scholar in the following. Firstly, in the introduction, Mr. Agassiz raises the question of whether the classifications of animals are artificial or natural. He wonders if they are merely divisions arising from the needs of the human mind, or if they have been introduced as categories of their thinking by divine intelligence? And are we ourselves only the unconscious interpreters of a divine thought? Agassiz does not hesitate to declare himself for the latter. He seeks to prove that the origin of organic beings must be based on a unified, preconceived, independent of external circumstances, freely conceived plan of creation, a plan that must have existed entirely in thought before it manifested in actual forms, and which ultimately ends with the introduction of humans into creation. The human mind translates only instinctively and unconsciously the divine thought expressed in nature into its language, thereby proving its kinship with the divine mind. Since man is made in the image of God, we approach the works of the divine reason through our own mental operations and, through the nature of our own minds, better understand the infinite mind from which it originates. Agassiz is aware that the name of God may seem inappropriate to some researchers in a scientific work, but he will not be deterred from expressing his conviction that, until it can be proven that physical forces produce reason, any revelation of thought must be considered as evidence for the existence of a thinking being as the cause of this thought, and so on and so forth. Moving on to specifics, Agassiz argues against those who consider external influences of nature as one of the main causes for the emergence and gradual growth of living beings. He asserts that, firstly, under the same external conditions, various types of animals and plants are found, and secondly, identical types are found under various external conditions. There is no difference between the herring in the North Sea, the temperate zone, and tropical regions. Foxes and wolves are the same across all latitudes, and there are countless other examples. External conditions cannot be considered as causes of the diversity of organic beings; on the contrary, everything indicates that they have the greatest independence from the physical causes under which they live—a independence so great that it can only be seen as the result of a higher power. All changes brought about by external influences on animals have nothing to do with their essential character but only with their non-essential. Even before such an influence could take place, these beings must have existed. Therefore, even if one were to admit that influence to the greatest extent, the question of origin, the initial emergence of organic beings, still remains. There was a time when no living beings existed. Since that time is known through geology, and it is known that no other natural laws existed then than today, and since there are no natural laws today by which that origin could have occurred, external influences cannot have brought animals into existence; or a god must have created them! The relationships between organic beings and the physical conditions under which they live are determined, regulated, and arranged by a supreme

thinking being for each species from the beginning. According to Agassiz, blind fish and insects in the Mammoth Cave in Kentucky demonstrate the immediate influence of extraordinary conditions on organic development. However, the discovered rudiment of an eye proves that the original design was created by the Almighty according to a general plan.

According to Mr. Agassiz, divine wisdom is further revealed in the fact that a unified basic plan of structure emerges in otherwise very different types. He exclaims, how could such a system come into existence without a supreme creator of all things? In line with this, we also observe corresponding details of structure in otherwise completely separate animals. The wing of a bird resembles the human arm, just as the pectoral fin of a fish, etc. However, this unity of the plan only applies to the same major divisions of the animal kingdom, which Agassiz (following Cuvier) distinguishes into four: vertebrates, arthropods, mollusks, and radiates, which, according to him, cannot be easily compared with each other. The head of a vertebrate is not the head of an insect, the digestive tract is not the same here as there, and so on. On the contrary, the fundamental character in the construction of these four fundamental divisions of the animal kingdom is entirely different. Researchers who demonstrate similarities here and extend their comparisons beyond the boundaries of nature itself, those who generally exaggerate the principles of comparative anatomy, according to Agassiz, deny the creator as much freedom in expressing his thoughts as humans themselves enjoy. According to him, all animals are formed based on four different blueprints or express four great ideas, between which there is no connecting band other than the similarity of embryonic structure in the egg. Nevertheless, a complicated harmony underlies everything, and we notice various degrees of kinship even between animals and plants that have no distant genealogical connection and live in the farthest parts of the world from each other. Only the individual carriers of this harmony are transient, while it itself is eternal; and while a species often endures for long periods, the individuals representing it are always changing. Here, too, Agassiz sees more of a creative spirit than the workings of blind forces. Nature has a system, and the systems of the human mind approach it more or less, but the coincidence of both proves the identity of the operations of the human and divine mind; and the unity of the plan in animal creation demonstrates the foresight of the creating spirit. Also from the circumstances accompanying the geographical distribution of animals, Agassiz draws his conclusions against materialistic views. Some animals and plants are either spread across the entire land or the entire sea of the Earth, while others are limited to specific continents, places, or locations. Representatives of the four large typical realms proposed by Agassiz are found everywhere, both now and in past geological eras. (Only radiates are restricted to water.) However, the classes of animals are more limited. Wherever they may be, they gradually adapt to external conditions. According to Agassiz, there is an aspect of their organization in animals and plants that has an immediate relationship with the surrounding elements, and another aspect that does not have this relationship and determines their true type or character. Therefore, these elements cannot be considered the cause of their existence in any way; instead, that relationship must have been present in the creative plan at the time of the origin of organic beings! According to Agassiz, there are zoological provinces, regions, fields, etc. Almost every island in the Pacific Ocean has its own organic character, and the facts point to an original origin of individuals of the same species in different places or very closely related species representing each other in very different parts of the world. And, according to Agassiz, this is one of the strongest reasons against the assumption that physical agents have altered the true character of the organic world. Following this, it is further

emphasized that widely distributed types show identity of structure. The animals and plants of North America have a great similarity to those of Europe and North Asia, while New Holland, under the same latitudes, is very different from Africa and South America. Why is this so, Agassiz asks? The difference between America and Europe or North Africa is no smaller than that between Australia and certain parts of Africa or South America, yet the relationship here is completely different. Everything, therefore, proves that the higher relationships between plants and animals and their habitats must be conditioned by influences other than physical ones. Each species has had a specific point of origin or emergence from which it has spread further, and this point is still recognized today by the main concentration of the species in the same place. According to Agassiz, it is now definitively recognized that neither plants nor animals could have originated in the same location; they originated simultaneously and separately in America, Europe, etc., in large numbers and on average in the characteristic number of their species. Therefore, the geographical distribution of animals cannot be a matter of chance. But on the one hand, it is observed that widely distributed and distant types show similarity in formation, and on the other hand, there is a commonality of formation among animals living in the same regions. An example of this is mainly New Holland, where marsupials prevail, while they are unknown in any other part of the world. There are no quadrupeds, neither apes nor lemurs, nor insect-eaters, nor true carnivores, nor many other animals there. Nevertheless, marsupials show a great diversity in their structure, and among them, we find analogous representatives of most orders of mammals. However, all these animals have some very distinctive anatomical characters that set them apart from all other mammals. But altered external circumstances cannot be blamed for this, as all other animals in New Holland do not deviate from the usual character in this way. Additionally, each continent contains some unique groups of plants or animals that are enclosed within specific geographical boundaries, and many examples can be given for this. Therefore, it follows that the organization of animals adapts to both different and identical conditions of their existence and cannot be viewed as arising from these conditions!! Agassiz adds several other pieces of evidence to support the independence of organic beings from the media in which they live, especially regarding their origin, and stands as a staunch defender of the so-called immutability of species. According to him, once created, these beings do indeed adapt to the elements in which they live, but they are not brought forth by them. Organic beings are made to assimilate the materials of the inorganic world, but they maintain their original character despite external physical influences, demonstrating a specific permanence of their specific characteristics. Neither time nor external circumstances change these essential traits. During the same geological periods, animals do not change. Animals found in Egyptian tombs, according to Agassiz, show no shadow of a difference from those living today, despite an elapsed period of 5000 years, leading to a confident assumption that species do not change due to the influences of time during the same geological epochs. Geology only shows that different species existed at different periods.

In this regard, Agassiz attempts to counter a frequently made remark by opposing writers as follows: Changes are demonstrably occurring from one geological epoch to another. Species that did not exist in an earlier epoch exist in a later one, while the earlier ones have disappeared. Even if it could be proven for each species that it has maintained its characteristics unchanged for a specific period, this fact still proves that species must ultimately change over a very long time. Agassiz considers this entire conclusion to be false, as the species that lived in an earlier period could have been wiped out and replaced by others

in a later one! According to him, there is not a single fact that would suggest species transform from one into another; we only know that they are different at various periods. Agassiz compares the succession of organic generations to a museum showcasing successive schools of painters, suggesting that the works of nature do not change with time any more than works of art. We do not know how animals originated or the source of their diversity at different periods, but we know enough to reject the idea of transformation. Transitions between two epochs have not been observed, and every new fact from modern research supports the immutability of species. It can be proven that plants and animals have remained the same over a period of 5000 years, and, even more remarkably, there are coral reefs in Florida that must be 30,000 years old, yet all their corals belong to the same living species. However, if someone were to argue that an even longer period could have had an effect beyond 30,000 years, Agassiz believes there is no answer to that. Regarding the variability of domestic animals or plants, Agassiz argues that it does not contradict his view because it is brought about by artificial means. According to our author, all changes in organic beings over time are the result of the activity of an intellectual power, ordered by this supreme intellect, not by physical agents. Everything points to the existence of a Creator and that the world cannot be the product of physical causes.

Similarly, Agassiz interprets the relationships between individual animals, embryology experiences, the lifespan of animals, and similar aspects. However, as a naturalist in opposition to theology, he recognizes the close kinship between humans and animals and the similarity of the former in its lower races to orangutans and chimpanzees. An interesting observation is his remark that the denial of this truth is owed to the influence of ancient Aristotelian philosophy, which arose at a time when those two apes were not yet known. Agassiz also views the well-known relationship between the animal and plant world, whose existence is mutually intertwined, as a consequence of the arrangement of an intelligent Creator. According to him, all such relationships in nature are regulated by higher wisdom. Regarding the general relationship between matter and form, Agassiz expresses that matter remains eternal, while the form to which it is transformed by living beings is always different throughout time. However, this transformation of forms in the organic world is said to derive from entirely different causes and principles than in the inorganic world. Certainly, it is stated, the noble figure of humans does not owe its origin to the same forces that combine to give a finite shape to a crystal! Inorganic forces consistently exhibit the same effects at all geological epochs, which they continue to produce today, whereas in the organic world, each period presents new relationships and an eternal exchange of new combinations, ultimately reaching its climax in the birth of humans! According to Agassiz, this proves that those inorganic forces could not have produced this change in the organic world. In this change, according to him, species and groups of plants and animals have as specific a lifespan as individual beings, and just as the Earth continually transforms, animals and plants have continuously perished and arisen anew. However, he argues that they can only owe their origin to the immediate intervention of a creator.

Finally, Agassiz also addresses the difference between human thought and divine thought, claiming that the former occurs sequentially, while the latter encompasses the past, present, and future simultaneously, revealing foreknowledge and omniscience in its expressions made through the creation of the organic world.

Lastly, Agassiz does not forget to thoroughly address a question that must be considered one of the most important and frequently discussed on this terrain—the question of the ascending sequence or ladder of organic beings on Earth. Earlier, Agassiz explains, it was believed that the lowest animals were the first to emerge, and this continued until humans. According to him, this is not the case. On the contrary, representatives of all four major divisions or types of the animal kingdom existed already in the earliest geological periods or at the very beginning—namely, fish, radiates, mollusks, and arthropods. Each class of the last three mentioned divisions was represented in the earliest times, with few exceptions, and only vertebrates first appear in their lowest form, as fish. Despite this, Agassiz himself finds it necessary to raise the question of whether the earliest organic remains we know of may truly be the remains of the first inhabitants of the Earth, or if the traces of these earliest inhabitants may have been lost due to changes in the enclosing rocks, fire, etc. On the other hand, there is evidence that, for example, in America, Paleozoic rocks are known to have undergone few or no changes, yet the earliest representatives of the organic world were found to coexist across all classes from the very beginning. Even where rocks have undergone significant alterations, it seems that the traces of the Earth's earliest inhabitants may not be entirely erased. But even aside from the sequence of the emergence of the organic world on Earth, the question arises: do all animals of the present world, like those of the past, form an uninterrupted series from the lowest to the highest? Earlier, this belief was also held, and the names Lamarck, Bonnet, de Blainville are associated with the history of this view. However, according to Agassiz, this also contradicts the facts. Some echinoderms, according to him, have a more complex structure than any representative of mollusks or arthropods and perhaps even some vertebrates. There is no absolute inferiority or superiority of one type over another, and a relative one is at least doubtful; for the animal world is based on four different plans that provide little opportunity for comparison. In each type, there are representatives of high and complex as well as others of very simple structure. Therefore, arranging the various types in a simple series brings together very heterogeneous forms and encounters numerous insurmountable difficulties. However, gradations can be demonstrated within individual orders or classes—such as the significant gradation of vertebrates from fish, amphibians, birds, and mammals, and similar distinctions in the lower kingdoms. Yet, there are insects whose superiority over some crustaceans may be challenging to demonstrate; there are worms that stand higher in every respect than certain crustaceans; the most perfect acephalans seem to be more organized than some gastropods, etc. Even the classes do not always show the discussed sequence. This is more the case within the orders, which, according to Agassiz, are truly based on a sequence. Agassiz appeals to the difficulties of geological experience, which repeat in zoology, and rightly complains that geologists lack sufficient zoological knowledge. Despite all, he eventually concedes that the idea of an ascending sequence in the animal world is true to a certain extent, but there is no simple series of creation. A unified plan is supposed to underlie the entire animal creation. Agassiz also does not forget to draw attention to the well-known similarity of the embryological development of current animals with the series of past generations and speaks of the existence of so-called embryological types. According to him, the similarity of the young of higher animals to adult animals of other classes is enormously significant, and this excessively broad perspective has given rise to the well-known work "Vestiges of Creation." In addition to these embryological types, there are also so-called prophetic types, which in the past combined a number of physical

characteristics that are now distributed among different animals and which sometimes coincide more or less with embryonic types. According to Agassiz, they prove that the plan of the entire creation was thoroughly considered long before its execution. A thoughtful connection unites all living beings through all ages in a grand system intimately structured from beginning to end. "In a word," as it is literally stated at the conclusion of a recapitulation presented in thirty-one sections, "all these facts, in their natural connection, loudly proclaim the One God whom man should know, worship, and love; and natural history must, over time, become the analysis of the thoughts of the Creator of the universe, as revealed in the animal and plant kingdoms." !!

This is the train of thought of the famous scholar, who, as one can see, is consistently guided by a strong desire to demonstrate the hand of a creative, organizing power in the processes of organic creation, both contemporary and ancient, regulating relationships in a predetermined manner and controlling nature entirely according to its will. This pursuit may be considered less as the result of a pure and unbiased view of nature but rather as an interpretation of natural phenomena guided by specific intentions in the interest of religious or theological doctrines. Let us see if and to what extent Mr. Agassiz has succeeded in his interpretation.

Regarding the question of whether the classifications of animals are natural or artificial, the formulation of the question is indeed peculiar and allows for various interpretations. However, once posed in this manner, the term "classification" seems to already suggest that it can only refer to artificial divisions arising from the needs of the human mind for distinction. Nature itself does not require such differentiations or classifications; it is a continuously expanding whole in all directions, escaping all systems and artificial confinements. On the contrary, the human intellect demands such separations and distinctions to comprehend this whole in its individual parts and to communicate with others of its kind about it. However, all these divisions suffer from the flaw that they cannot be perfectly carried out and must, in one way or another, impose violence on nature, here or there. Mr. Agassiz may try to explain this circumstance by stating that due to its imperfection, the human mind is not always capable of fully understanding or penetrating the divine thoughts expressed in nature, but that science must strive continually towards this goal. It must be noted, however, that in the classification of animals, science has so far achieved the least stable or secure results, and systematic zoology is constantly divided into hostile camps. Contrary to Agassiz's view that systematic zoologists should all work towards the same goal, namely the recognition of the boundaries and interrelationships set by nature herself, and should remain on the same path in this work up to a certain point, they instead embrace divergent opinions and different principles of classification. They acknowledge that solid boundaries of natural realms, as well as their individual components, cannot be drawn. Not even about the fundamental concept of systematic zoology, on which everything seems to depend—the concept of the species—have zoologists reached a consensus. The most diverse and often peculiar definitions of this concept compete with each other, and it is a subject of endless disputes, as can be read in detail in Giebel's work (Current Issues in Natural History, 1857). A multitude of new species is created each year, and every zoologist has his own way of distinguishing species. Under such circumstances, it will not be difficult to conclude that the classifications of animals are more made by the systematic understanding of man than by nature herself. Agassiz himself distinguishes, as we have seen, following Cuvier's example, four major divisions or types of the animal kingdom in which he sees a fourfold and incomparable embodiment of the divine

thought from the beginning, namely vertebrates, arthropods, mollusks, and radiates, while Professor Giebel in Halle, in his recently published "Natural History of the Animal Kingdom," recognizes only three such major types under the names of vertebrates, arthropods, and abdominals, listing mollusks and radiates simultaneously with polyps and infusoria as sub-divisions of abdominals or as classes. Others make different divisions; for example, Professor Kaup in Darmstadt categorizes animals into head, thorax, abdomen, trunk, and pelvis animals, believing that he has hit the mark with this. *) If Mr. Agassiz is correct in his perspective, it must be admitted at least that the divine idea of classification, as far as it concerns the animal world, must have been expressed in a somewhat unclear or incomprehensible manner! According to Agassiz, nature should follow a unified basic plan, a system in the construction of its organic forms. However, he continuously speaks of the great diversity of the four major types, divisions, or basic plans that are supposed to manifest in the structure of the four mentioned animal species, thereby entangling himself in apparent contradictions. For while, on the one hand, he sees the unified divine thought shining forth throughout the animal creation, which has pre-arranged everything according to a deliberate plan, on the other hand, he criticizes those researchers who, by exaggerating the principle of comparative anatomy, demonstrate similarities even among those four major fundamental divisions or extend their comparisons beyond the boundaries of nature itself. He believes that such researchers deny the Creator as much freedom in expressing His thoughts as humans enjoy themselves! With such a critique, every serious objection to Mr. Agassiz's view is indeed eliminated, and instead of the natural law, the exploration of which is the task of an honest naturalist, personal arbitrariness is substituted. According to Mr. Agassiz's understanding, a Creator could indeed express His thoughts however He wished and take pleasure in creating the most adventurous forms without adhering to any law of nature or form! However, what then would be the value and significance of that unified plan of creation, that intricate harmony, that principle of unity in diversity, which Mr. Agassiz speaks of on every occasion? How is it to be used to derive evidence for the existence of a creator of that harmony? It is not evident, and, on the contrary, a highly pronounced arbitrariness of arrangement would be a better proof for this than the most successful harmony.

**) Bronn distinguishes five circles: Amorphous animals, Radiate animals, Mollusks, Articulated animals, Vertebrates; Gegenbauer identifies seven major groups: Protozoa, Coelenterata, Echinodermata, Vermes, Arthropoda, Mollusca, Vertebrata; Weinland: Protozoa (Primordial animals), Radiata (Radiate animals), Mollusca (Soft animals), Articulata (Jointed animals), Vertebrata (Vertebrates). Kner (Zoology, 3rd ed. 1862) distinguishes, like Giebel and Burmeister, a lower, middle, and upper series as abdominal animals, with subdivisions being Primordial animals, Radiate animals, and Soft animals; as Jointed animals with six classes or subdivisions; and finally, as Vertebrates with the well-known four classes. Older zoology, as is well known, only differentiated Vertebrates, Insects, and Worms. Even greater is the diversity of classification in detail and precision. Recently, Owen even groups Amphibians and Fish into one class.*

His main argument against the autocracy of nature in the origin of organic beings, however, Agassiz derives from the so-called immutability of species and the asserted impossibility, as claimed by him, that the external influences of nature could have been the cause for the emergence and change of those beings throughout geological epochs. Here, he ventures into a field that still contains so much darkness and unclarified matters that for someone like Agassiz, who wants to interpret a specific opinion into nature, it is not too difficult to find apparent evidence for it. Nevertheless, he can only arrive at his proofs through a major and long-discredited inference in the narrower fields of exact natural research, namely the conclusion that effects whose natural causes we do not yet understand must be the result of unnatural causes or a miracle. Instead of admitting that the laws governing the emergence and

evolution of organic beings in the past undoubtedly elude our precise understanding, with the hope that continued research will shed more light on this, Agassiz believes himself justified in immediately clothing our ignorance in the form of an unnatural force. He would only acquire the right to such a stance if he could demonstrate that the processes in question here could only have taken place in total contradiction to the nature order known to us, with the natural views we have discovered. Agassiz, however, has not provided such evidence and cannot provide it at all. Everywhere, he only succeeds in demonstrating that the known processes and influences in the animal world are insufficient to provide a sufficient explanation for their origin and evolution, but nothing more. For example, regarding the question of the first origin of organisms, when Agassiz refers to geological research showing that in prehistoric times no other laws of nature existed than today, and yet the emergence of animals occurred, therefore, it could only be caused by supernatural forces, he touches upon a relationship that nowadays most naturalists decisively determine to believe in the origin of organic beings by natural means. The very fact that geology has succeeded in comprehending the changes in the Earth's surface in ancient times as purely natural, still active causes suggests the same for the organic world that has grown on this surface in the meantime. There was not too long ago a time when faced with geological changes on Earth, one was in the same predicament as one is today with organic changes, and there, just as much as here, one believed that recourse to supernatural forces was necessary. This situation has rapidly changed with the progress of science, and perhaps the time is not far off when it will likewise change concerning organic phenomena. Not only in the prehistoric world did organisms originate, but they continue to arise even today. And even if the most determined opponents of spontaneous generation were to persistently hold their ground, it would only prove that either this process has not yet been observed by our researchers, or that the law governing the emergence of organic beings is currently in a state of latency or concealment, while in the past, a chain of circumstances must have formed to temporarily activate that law. However, if this chain of circumstances were ever to form again based on the known laws of nature, the same effect must occur, for the laws of nature are always the same and unchanging. Certainly, Mr. Agassiz does not want to accept that analogy between the organic and inorganic world and derives both from entirely different causes and principles. But he pays too little attention to the advances in modern physiology, which strives to demonstrate the previously believed specific differences between organic and inorganic as increasingly insignificant and allows no other forces to be at work in the organic world than those which also move the inorganic world. Mr. Agassiz finds it repugnant to his feelings that the same forces that gave a finite shape to the crystal should also have brought forth the noble figure of man! And yet, it must be so, and yet the unbiased naturalist views the crystal with the same admiration as the most perfect organic form, knowing that here, as there, nature has accomplished something equally great, valuable, and meaningful, and that the formative drive of nature manifests itself equally strongly in both directions. And it is this formative drive that Mr. Agassiz either cannot see or refuses to see, attempting in the most improbable way to replace it with the direct interventions of a continuously active creative power. The idea that the formative drive of nature, on its path to realization, encounters the most diverse difficulties brought about by external circumstances, that it is sometimes hindered, sometimes promoted, sometimes rendered impossible, and sometimes redirected into various paths, is a concept that aligns everywhere with the facts. From a higher perspective, it makes it not difficult to understand the sometimes regular, sometimes irregular phenomena in the growth of the organic world by

considering the counteraction of these two elements. However, if one, like Agassiz, exclusively focuses on one of these elements without consulting the other, one becomes entangled in insoluble difficulties. The main aim of Agassiz's work, as we have seen, is to demonstrate that the external circumstances and influences of nature, or what he prefers to call the physical agents, have been incapable of either producing organic beings or developing, altering, etc., them in the manner known through paleontological research. Certainly, one can agree with him to a certain extent in this opinion, without remotely subscribing to his conclusion that only a supernatural force could have regulated the relationships between organic beings and the physical conditions under which they live. The external influences of nature are originally more of a condition than a cause; however, the conditions they set can sometimes become so powerful over time that they themselves become the cause of specific changes.

The blind animals in the Mammoth Cave in Kentucky, to which Agassiz refers — similar ones have also been found in other (European) caves — show that the absence of light can either prevent the development of the corresponding animal organ for this physical agent or cause it to disappear if it was originally present. The discovered rudiment of an eye does not prove, as Agassiz believes, the work of an all-powerful Creator who, in his wisdom, would have denied eyes to an animal that does not need them. Instead, it demonstrates the inherent drive of nature, which, without regard to plan or purpose, breaks through in its further development but is conditioned or negated by the external influences of nature.

Although Mr. Agassiz does not entirely deny the influence of these physical agents on the change of animals, he limits it to making a distinction between so-called essential and so-called non-essential characteristics of animals, considering those influences as only applicable to the latter. That might be good if a strict boundary could be drawn between what is considered essential and non-essential characteristics of animals in general. However, every zoologist will admit that this is impossible. One may declare something as non-essential, which another considers essential, and once it is generally admitted that there are characteristics that change due to external influences, everything is essentially admitted. Because a boundary line, where the force of that influence should suddenly cease, cannot be drawn; and even if, in the short span of time during which we have gathered and could gather our observations, we can perceive only somewhat distinct changes, we must at least admit the possibility that the almost infinite duration of prehistoric periods, coupled with more unleashed natural forces, has produced effects that are no longer or not yet within our immediate observation. The examples that Agassiz draws from the Egyptian tombs and observations on the coral reefs of Florida do not prove what they are intended to prove. Because the fact that a species has held its essential characteristics unchanged for a certain number of years at a single location under specific and unchanging conditions does not allow us to conclude that this must have been the case always and everywhere, especially where altered circumstances have come into play. On the contrary, according to the theory of evolution, it is not to be expected otherwise than that where external conditions and influences do not change significantly — as was the case in Egypt, for example — the character of the inhabitants will also not change significantly. Time alone does not bring about transformation but does so only in conjunction with other causes. Furthermore, the time periods cited, despite their magnitude, are small compared to those of the past. Moreover, if Agassiz does not want to accept the significant variability observed in our domestic animals

and plants due to artificial influences because artificial means are involved, it still indicates that the predisposition for variability, or the possibility thereof, is not lacking in the nature of animal beings. It also suggests that it depends more on the strength or duration of external influences than on other factors. Overall, Agassiz consistently downplays the experiences that speak to the variability of animals due to external circumstances and overestimates the contrary experiences. Read other authors, for example, the recently publicly discussed book by Weiss on the unity of the human race, and you will find that the opinions of naturalists on this point are by no means unanimous. There are just as many, if not more, reasons and experiences that can be set against those put forth by Agassiz, speaking to a very extensive variability of organic beings due to external influences, even within the limits of our observations. As is well known, two scientific schools have been fighting each other in this matter for a long time, and Agassiz counts among the most decisive representatives of the school that advocates the so-called constancy or immutability of species. This standpoint is particularly troublesome because, as already indicated, the concept of species can be no more securely established than the distinction between essential and non-essential characteristics of animals. Every zoological writer, as mentioned earlier, has a different idea of what is meant by a species and has their own way of distinguishing species. A mass of new species is created every year. "Species is not a fixed concept, not given by nature itself" (Bronn). But if one does not know what "species" is, then one cannot speak with the certainty that Agassiz does about the "immutability of species," and one must admit that in this way the limits to which the variability of animals is supposed to extend cannot be determined, and nature itself goes beyond the goals set for it. However, even if one were to overlook all of this and accept Agassiz's opinion in its entirety, it would lead to scientifically untenable views from another perspective. Since every species is constant, and in every geological epoch, we observe new and different species emerging, which, according to Agassiz, cannot be assumed to have formed through a transformation from previously existing similar ones, the only remaining concept in the Agassizian sense is that after each geological epoch, God or the creative omnipotence has eradicated the existing species and replaced them with new ones. Indeed, Agassiz, as mentioned above, has no qualms about confessing to this peculiar opinion, which suffers primarily from the flaw that it no longer aligns with the state of our current geological knowledge. Mr. Agassiz still holds onto a notion of strictly separated geological time periods, not interconnected by any transitions, which were prevalent in older geology but have been increasingly displaced today by healthier views and a more accurate interpretation of facts. The history of the Earth, as it is now written, no longer acknowledges general catastrophes and revolutions but only a continuous series of natural changes that are analogous to those still actively seen on the surface today. Thus, according to Agassiz, miracles, i.e., the creation of new animals, must have occurred from time to time in this history without any sufficient cause, and these miracles must still persist since the conditions of the Earth's surface have not changed fundamentally since earlier times, and animals still become extinct and new ones take their place. However, the concept of miracles is abhorrent to modern natural science, and what cannot be explained naturally at present at least carries the hope that, like many other things, it will be explained later. Even less compatible with geological facts is the view of periodical new creations interrupted by specific time periods, considering what we know about the history of the extinct animal world itself. "The surprising similarity," says Professor Giebel in Halle, "and even complete identity of quite a considerable number of species from the tertiary and diluvial epochs with those of the present creation, the essential agreement of

general organizational conditions throughout these formative periods, renders the assumption of a fundamental rearrangement of living conditions since the creation of the present animal and plant world absolutely inadmissible." If Mr. Agassiz were correct, the science of comparative anatomy would lose any deeper significance, and the researchers' efforts would only be directed towards exploring which and how many species and with what differences they were originally created – something that is impossible. "It cannot be determined at all," says Bronn very aptly, "how many species the original force created, and what kind of differences existed. Species is not a fixed concept, not given by nature itself." *)

So the entire struggle that Mr. Agassiz has undertaken for the immutability of species through external influences, insofar as it is intended to demonstrate the activity of an immediate creative power, is a very unproductive one. This holds equally true for the other arguments of the famous author that have remained untouched until now. Namely, everything that Mr. Agassiz further discusses regarding unity and coherence in the structure of different types or the diversity in the four fundamental divisions of the animal kingdom that he has established, his insights into the geographical distribution of animals and their specific relationships with the surrounding elements, as well as his views on the identity of structure in widely dispersed types, his thoughts on the existence of so-called zoological provinces and separated centers of creation, and finally, his observations on prophetic and embryological types – all of this must, in the eyes of a person who examines the facts without the bias of a preconceived opinion, speak much more for the self-activity of nature in creating its organic beings than for the existence of a divine plan that is realized through continuous direct interventions, a plan that has been "maturely considered long before its execution." Nature knows nothing made, only things that have come into being; nothing that happens by caprice, only things that occur according to eternal, unchanging laws. Only for someone who would claim that the external influences of nature are the sole and exclusive cause of the origin and development of organic beings, may Agassiz's explanations be contradictory. However, for someone who recognizes in nature a general, never-resting impulse for formation and specifically in organic nature a development law that is still unrecognized in its innermost causes, finding only limits or conditions in external circumstances, they are not contradictory.

**) It is indeed asking a great deal from the human intellect from a very general standpoint when one tries to convince it that a creative force, approximately every million years or so, without any sufficient reason, had taken the initiative to engage in such creative diversions or, better said, exercises on the altered surface of the Earth. These activities involve regulating and arranging the relationships of the external nature with its newly baked creations, while simultaneously improving itself to the extent that each time it had to bring forth something a little higher and more perfect— all of this after, as Agassiz claims, it had already preconceived, devised, and arranged the entire plan before the beginning of the world! Such ideas, apart from the internal contradictions they carry within, are scientifically untenable. *) "That there are such (geological evolutionary) series, we are just as firmly convinced as that there are many of them. The theory that the entire animal kingdom can be arranged in a series, starting with the lowest animals, such as infusoria, and ending with humans, has had its days. However, this has led to the erroneous abandonment of the principle of series altogether. The animal kingdom consists of many series that run alongside each other, originating from a common point but infinitely branching out since then. Demonstrating these various series, i.e., showing how different animal (and also plant) species, genera, families, etc., connect to each other so that each subsequent one develops from the preceding as a higher or different-purpose form, appears to us as the ultimate goal, the glory of all natural history classification, as this turns the latter into the very creation story" (Weinland, the zoological garden, I, No. 3, 1859). Kner (loc. cit.) also argues for not a continuous ladder but several parallel and continuous series, with one series generally standing higher than the other.*

Regarding the question of the ascending sequence or hierarchical ladder of animals, one can essentially agree with Agassiz's perspective without conceding anything to the materialistic theory. Indeed, Agassiz admits more than his theory would suggest. He aptly raises the question of whether we truly know the oldest inhabitants of the Earth and, therefore, are justified in drawing conclusions about the sequence of stages from the simultaneous accumulation of remains of the four major basic types in the oldest fossil-bearing earth

layers. Recent geological research increasingly makes it unlikely that we truly know those oldest inhabitants, inviting us to gaze with astonishment into a more distant past, billions of years behind us. It even raises doubt as to whether there could be any talk of the beginning of organic life on Earth at all. Hence, this circumstance may no longer directly hinder the theory of the hierarchical ladder. What Agassiz argues against the assumption of a so-called simple series of creations is even less of an obstacle. The untenability of such a view has long been recognized, especially by the materialistic school, as the existence of such a simple series would almost speak more for the effectiveness of an organizing hand than for a natural law. The series of creations of organic beings is not simple but rather multiple, very complicated, and confused, altered, and blurred by manifold, partly unrecognized, external and internal influences. Apart from the external influences of nature, which must have interfered everywhere and produced apparent irregularities, the laws of progress are also effective within each individual circle or group of species. The most perfect creatures of a lower circle develop higher than the imperfect ones of a following higher circle. Thus, individual animals of a lower class can stand far above individuals of a higher class, without overturning the undoubtedly existing general law of development, which the best researchers today acknowledge. *) Therefore, even though the entirety of animals cannot be understood as a simple series from the monad or sea sponge up to humans, the gradual progress within the major types, especially within the most important one, the vertebrate type, is unmistakable and acknowledged by Agassiz himself in a way that spares us further elaboration. If Mr. Agassiz wishes to use such a relationship and the ignorance we still have about its specific details to make his readers believe in direct acts of creation, he is committing an offense against his own science by degrading it to serve external and fundamentally foreign purposes. In his case, the concepts of theology and natural science become so entangled that he can no longer distinguish between them, going so far as to want to banish natural history to positions that mark its earliest infancy and that it has long overcome for its own and humanity's well-being. Natural science is the most objective of all sciences and can directly serve only itself and no other consideration than the exploration of the real. The tendency that Mr. Agassiz wants to impose in the concluding words of his recapitulation is associated with such a total misunderstanding of its entire task that accepting it would be tantamount to abandoning itself. Mr. Agassiz's demand only proves that one can be an excellent naturalist and still be in a profound error about the highest or philosophical purposes of natural science. Fortunately, in our case, this error is so palpable that it can hardly cause harm. Perhaps, in a time less stirred by extremes than ours, Mr. Agassiz will retract this error, or perhaps he believed he had to counter one extreme with another. Be that as it may, extremes will disappear, and science will not be deterred from continuing the path of objective research, which it has followed with great renown and success, by the admonitions of Mr. Agassiz or similar and stronger zealots.

14. On the Mental Life of the Newborn

(Dr. A. Kußmaul: Investigations into the Soul Life of the Newborn Human. Leipzig and Heidelberg, 1859.)

(1860)

"The more vigorously the inductive method breaks ground in the field of psychology," says the author, Professor of Medicine in Erlangen, on page 5 of his cited pamphlet, "the clearer the vessels of neurophysiology come to light, the more impartial and unconcerned minds approach the investigation of reality, the more the mists that still conceal our insight into the connection and laws of our highest, our mental powers at present will dissipate." Starting from this perspective, the author seeks to contribute to the clarification of one of the darkest periods in human soul life, namely the period of newborn infancy, and thereby attempts to fill a portion of the significant gaps encountered in his psychiatric studies in empirical soul research. "After so many thick books have been written on psychology," it is stated elsewhere, "it is truly disheartening to still encounter such significant gaps in the developmental history of the soul." This complaint is only too well-founded and has its very natural basis in the fact that philosophy and natural science have always been kept far apart, and philosophical psychologists have often provided us more with a reflection of their own mental being than an objective presentation based on actual research. Even when they attempted the latter, as our author notes, "it cannot escape the unbiased observer how even the best minds often blatantly closed their eyes to the most convincing facts and shaped things according to preconceived dogmatic views of a metaphysical or theological nature."

Indeed, the perpetual inclination of philosophers to prefer the deductive path over the inductive one and to start with more general and unproven principles or assumptions than an unbiased appraisal of the object itself often renders their otherwise useful and laborious efforts more or less futile. In the history of empirical soul research, the author accords Aristotle and the English physician and thinker Locke the top positions but finds that, regarding his specific subject—the soul life of newborns—this history is filled with contradictory and mostly incorrect information. Experimental investigations, such as those conducted by the author, have not been undertaken by anyone else. His experiments extend to the sense of taste, tactile sensation, the sensation of warmth and cold, the sense of sight in general, as well as smell, vision, hearing, the sense of pain, muscle sensation, air hunger, and the sensation of hunger and thirst in newborns. Unfortunately, the experiments are not numerous enough and sometimes not sufficiently consistent with each other to draw very definite conclusions. Moreover, in such experiments, it is very difficult, often impossible, to distinguish movements that are based on sensory stimuli and conscious perceptions from those that are more reflexive in nature, i.e., owe their origin to a mechanical process in the nerves independent of consciousness and will. Nevertheless, the author believes himself justified in drawing quite far-reaching conclusions from his investigations regarding the intelligence of newborns and even the unborn. According to him, the child should have gathered some experiences and acquired skills even in the mother's womb, despite the unfavorable conditions of the location. This is believed to occur due to the sense of touch stimulated by contact with the walls of the uterus, as well as the taste sense and sensations of thirst and hunger aroused by swallowing the amniotic fluid. There are various objections that could be raised against these views and conclusions, particularly emphasizing that it seems unlikely to speak of thirst and hunger in a being that lacks sufficient and continuously supplied nutrition. The experiment where sleeping children startle in their beds when a loud

clap is made under the bed, during deep silence in the room, can hardly be used for a conclusive inference. This observation can be made not only in children but also in adults at any moment, and the body's startle response to sudden noises, whether in a sleeping or awake state, is one of the most undeniable reflex movements we know. Mr. Kußmaul himself admits at the beginning of his writing that even the seemingly most purposeful movement does not provide valid evidence for the mental origin of a movement, as evidenced by the ongoing controversies over the spinal cord soul. Therefore, such experiences, as Mr. Kußmaul has made with newborns, may only be used with the utmost caution and only with the help of a larger number of comparative studies to draw conclusions.

In any case, it is proven through daily experience and observation, and also confirmed by the present investigations themselves, that the mental life of the newborn human is on the lowest level of human sensing, imagining, thinking, and desiring. And if one wants to consider consciousness as a criterion of free mental activity, there can hardly be any talk of an actual mental life of the newborn in the strict sense. Mr. Kußmaul recounts that newborns are unable to find the mother's nipple on their own; instead, it must be placed in their mouths. They suck on a finger inserted into their mouths just as they do on the nipple. Initially, they perform sucking with little skill, easily tire, and only learn to draw milk vigorously and successfully after several days. Finally, there are some very clumsy children who never manage to do it completely. This is a very instructive example of how mechanical nerve excitations gradually, through a certain experience and continuous external impressions, awaken the first faint traces of sensation and representation in the child's brain, followed by a act of will. It is emphasized that the discussion revolves around more or less easily excitable predispositions, rather than innate ideas. These perspectives obtained through objective observations deviate significantly from the views of philosophers, some of whom Kussmaul feels compelled to mention when discussing the cries of newborns. The author rightly attributes the crying of newborns immediately after birth to the distressing and unfamiliar impact of the external cold air on the surface of the child's body. If there is anything that can be related to mental life in this context, it is undoubtedly only the darkest and most immediate sensation of pain or discomfort. In contrast, Hegel's philosopher views "the crying of the newborn human as a revelation of its higher nature." According to him, "through this ideal activity, the child immediately shows itself permeated with the certainty that it has the right to demand the satisfaction of its needs from the external world—that the independence of the external world against the human being is null and void. Hence, the unruly, imperious tantrum!" On the other hand, the Hegelian Michelet describes the cry of the newborn as the spirit asserting itself over submission to nature. Even the great Kant engages in reflections on the helplessness and unfreedom of the newborn, expressing justified indignation. He states: "The cry heard from a newly born child does not have the tone of distress but of indignation and outraged anger in itself; not because something hurts it, but because something displeases it; presumably because it wants to move and feels its inability as a restraint, through which its freedom is taken away." This is how speculative and empirical philosophers think! However, anyone considering such a juxtaposition will likely recognize the extraordinary transformation of our entire philosophical thinking within a few years, influenced by the empirical sciences and a changed research methodology.

15. Creation History and the Determination of Man

(Prof. Baumgärtner [in Freiburg]: Thoughts on Creation. Physiological Studies for the Educated. Also titled: Insights into the Universe. Freiburg i. B., Wagner)

(1860)

Once again, a book attempts, alongside some physiological discussions of a more popular nature, to comprehend the origin and development of the organic, particularly the animal world on Earth, under natural and, in particular, physiological perspectives. It simultaneously seeks to derive views on the determination of man and the human race from the acquired results! Mr. Baumgärtner, Professor of Medicine in Freiburg in Baden, considers it an established fact that the animal world, during various creation periods over millions of years, has ascended to higher developmental stages in different concurrent sequences, materializing the higher from the existing. According to him, this law has not only acted in the past but continues to do so today. Hence, the present human race may lay the foundation for even higher organized beings in the future! These thoughts in their generality are well-known. What is new, however, is what the author, in line with previously expressed views, presents regarding the organic development in the pre-world and its laws in detail. He claims to definitively answer a question that has always been among the unsolved in natural science, and which has so far only been attempted to be answered in its broadest outlines, on a physiological basis. In a section titled "Creation History," germ transformations or continuous generational changes falling on the so-called creation days are considered the ultimate cause of that organic development. According to Baumgärtner's view, animals cannot originate directly from elements or organic substances of the plant kingdom, nor can the cause be found in a gradual increase in the strength of creative forces (Bronn) or in a gradual transformation and metamorphosis (Lamarck, Geoffroy St. Hilaire), whether due to external influences or internal laws of formation. Instead, according to him, the cause lies in regular germ transformations through which higher animals originated from germs descended from lower animals. The lowest animals themselves originated from so-called primal cells or common formative masses for the germs of plants and animals. In these germ masses, a division or polarization occurred, resulting in plant life on one side and animal life on the other. Initially, only highly simple creatures, barely more organized than cells, emerged. However, through successive germ divisions in continually higher organized germs alongside continually renewing original formative masses, the organic world formed during the individual creation periods or great Earth revolutions, which Baumgärtner assumes to be 30-40, reached its present stage. In the first creation period, only the lowest organisms may have lived, in the second, mollusks, such as polyps and jellyfish, etc. Not only was there a single developmental series, but several ran alongside each other. Thus, only simple primal germs immediately originated from the elements, while all actual plants and animals owe their origin to a successive transformation of those germs. Air-breathing animals and humans were believed to have initially led a life in the larval state. As for the specific origin of humans, Baumgärtner considers it likely that the germs for their creation come from various animals, which may also be the cause of the racial differences. According to his theory, he does not even consider it necessary to assume the ape as the so-called germ donor for humans.

In the present era, according to Baumgärtner, there is no new formation of animals, from which it must be concluded that formative influences are of a periodic nature. The author answers the question of the origin of these influences only through speculations about the

details of the process and wants to consider the acts of creation in a somewhat philosophical sense as fertilization processes of the Earth. This philosophical sense is given even greater scope in a section where the author casts glances into the "Developmental Processes in the Universe" and attempts to find analogies between the formation of celestial bodies and organic germ formations. According to him, the transformation of shapeless nebulous masses into celestial bodies follows the same laws as the formation and metamorphosis of cells. The entire universe is an organism, in which stars and cells play a very similar or identical role and undergo the same polarizations. A significant portion of the stars, according to him (similar to organic bodies), is said to have originated through the division of common formative masses and already formed celestial bodies. Throughout the entire universe, constantly renewing polarizations take place; if this were not the case, according to Baumgärtner, the world would gradually conglomerate into a single lump. Since this has not happened for eternity, and it cannot be assumed that solid bodies exist at the edge of the "world building," exerting attractive forces on celestial bodies and thereby maintaining their position, nothing else remains but the above assumption! The developmental path of our Earth itself is an ascending organizational movement, connected with great developmental currents that not only spread over the Earth's surface but must also be related to general movements in space. The law of development governs the whole. Of course, this theory of development has, on the other hand, the necessary consequence that individual celestial bodies also undergo a finite and gradual dissolution—an assumption directly supported by astronomical observations and one to which our Earth, naturally, cannot be an exception. The author then presents some not uninteresting considerations on the often-discussed question of whether celestial bodies other than Earth could be the abode of creatures. He initially decides that Mercury, Venus, Earth, and Mars are capable of carrying beings with similar or very similar physical characteristics. Even the Sun itself is said to offer this possibility on its core, although for beings with a more deviant organization. Jupiter and Saturn, perhaps even Uranus and Neptune, are also said to be inhabited, although by beings with a completely different organization and made of much finer and less dense substances. In any case, inhabitants must exist, according to Baumgärtner, if only because if they were not there, one would doubt the purposefulness of nature! The author adds to this some interesting calculations on the size of astronomical spaces, i.e., as far as this size is accessible to our calculation, according to Arago. The light, which travels 42,000 miles in a second, must take approximately one million years to travel from one of the more distant nebulae visible through the telescope to our Earth and thus into our visual organ! It could be that such a nebula had already perished or disappeared a million years ago or a shorter time ago, without us ceasing to see it until the last light beam it emitted had not yet completed its almost infinite journey to us.

All of this now leads the author to a peculiar view regarding the purpose of humanity, aiming to eliminate the doctrine that the ultimate destiny of humans is nothing more than to dissolve into ammonia, carbon dioxide, and water to serve as nourishment for new plants and animals. According to Baumgärtner, the natural law dictating a continuous progression in nature from the lower to the higher over millions of years must persist, extending beyond the present human state. Following the current era of creation, a new and higher development of the human race will ensue. This development must even extend beyond the time and space of the Earth, as demonstrated by the possibility and even likelihood of the Earth eventually freezing or perishing. Since not only the individual human dies but also the human race and humanity

itself, the purpose of humanity must be sought entirely outside of death. This necessity leads the author to propose an extremely artificial theory of material interactions between the Earth and other celestial bodies, potentially extracting organic parts from the Earth's surface to be utilized on other celestial bodies. However, what is saved in this process should not be the body but the soul. The author raises questions about whether the soul, outside the body that generates it, can attain existence and undergo further development, whether the soul is substantive or material, and what the nature of the entire further development is and what the ultimate goal of all these movements is. The author expresses himself more in the form of questions than answers on these inevitably arising questions. However, according to his final opinion, there must be a thinking force to which the laws of nature and the ultimate foundation of all things must be attributed, and which we call God. An actual concept of this is impossible. Also, for him, God and Nature are not synonymous, unlike many natural scientists; a world soul is not God for him. Orderliness prevails everywhere in nature, providing evidence of an intelligent, all-encompassing force. Humans should devote themselves to pure worship of God. It is challenging to provide a concise judgment on a work that combines so much novelty and obsolescence, so much ingenious and stimulating material with so much fantastical and untenable content. Even from the brief summary provided by us, the attentive reader will have gleaned that the author operates partly from the perspectives of modern, especially physiological, natural research and partly from those of former natural philosophy. However, uniting these two perspectives is precarious in modern times, where natural philosophy has been largely sacrificed to science. The author, with proper tact, addresses precisely those points crucial in a philosophical examination of nature, which, as known, have been the source of much dispute. However, he goes further in their explanation than the current state of our scientific knowledge allows. His theory of germ fissions is more theoretical than factual and stands rather isolated in the literature to date. Modern geology may also find it challenging to reconcile with the theory, as the thirty or forty major and general Earth revolutions, serving as the theory's necessary foundation, are no longer widely accepted.

Nevertheless, the idea that the ascending metamorphosis and development of the animal world owe their origin to continuous generational changes or transformations of germs is a concept, though not new in this generality, that is inherently fertile. Continued research may provide more positive foundations for it in not too distant a future, beyond what it currently possesses and what Mr. Baumgärtner himself can offer. In any case, it is commendable to make efforts to elucidate these questions and relationships from scientific perspectives rather than leaving them to mythical superstitions. Even if some premature or immature aspects come to light, research is stimulated, and the general outlines in which it needs to progress become visible. It is likely that thinking and unbiased naturalists today would generally agree that the origin and development of the organic world, both in the past and present, owe their existence to natural causes and laws inherent in the things themselves. Therefore, the investigation of these laws must undoubtedly be considered one of the most outstanding tasks of science, particularly as the remarkable and daily increasing experiences of modern times regarding the laws of transformation in the animal world seem to bring the question closer to its ultimate solution. Why exactly the author, who openly confesses his religious convictions and belief in a transcendent God at the end of the book, fervently seeks such a solution remains somewhat unclear. It would have been more convenient for him to follow a well-trodden path and overcome all difficulties in his creation story through the familiar patterns

of theology and theological naturalists. However, his endeavour demonstrates that his scientific need has been stronger than his theological belief. With justification, the author places special emphasis on the developmental laws of the animal world, which, over an infinite series of years and determined by circumstances whose closer knowledge may always elude us, have consistently produced higher and more perfect forms, culminating in the ultimate creation of humans. If he believes that this development has not ceased but will progress further, leading to the emergence of a more highly organized and capable species than the current one, this is a conjecture expressed by others before him, and one that may be welcomed as it satisfies the human desire for perfection. However, when Mr. Baumgärtner goes so far as to immediately construct a whole theory on the purpose of humans based on this conjecture, it appears that imagination plays a larger role than discerning intellect. Not only is the expressed conjecture always just a conjecture, but such a determination would hardly console the individual facing the bleak lesson that they are destined to be transformed into carbon dioxide, ammonia, and water. Whether the species to which they belong will revive in a higher and more perfect form after a million years would likely not weigh heavily on their deathbed. What Mr. Baumgärtner perceives as the determination of humans is, in reality, not an individual one but rather a determination of the human species, further complicated by the author's own acceptance of the gradual petrification or dissolution of all celestial bodies, including our Earth, in their ultimate and most distant goals. Indeed, it becomes increasingly likely for the naturalist that nothing permanent exists in the universe, and each existence, from the mayfly to the billion-year-living celestial bodies, has emerged from the general cosmic womb only to ultimately return and contribute its eternal, indestructible atoms to the construction of new worlds and new natural entities. That such a fate could also involve the human species living on Earth is self-evident, and the author's artificial theory of a possible interaction between the Earth and other celestial bodies, whereby the refined organic seeds of the Earth would undergo further development elsewhere, is just a theory lacking any empirical foundation. In this way, it is unlikely that anything enduring will ever be conceived regarding the determination of humans, and such attempts only demonstrate the lack of positive reference points for those who believe they must seek the determination of humans outside of humanity itself. Those who have not reached the realization that life is its own purpose and that every moment of existence fulfils its destiny in that very moment may indeed find it disheartening that humans are only meant to be transformed into carbon dioxide, water, and ammonia! However, those who understand that nothing in the universe perishes and that the secret of existence lies in an eternal cycle, in which the individual is just a link in an endless chain, may perhaps rejoice in the consciousness that through their life, they have fulfilled their natural task and through their death, they have returned to the collective that which they temporarily borrowed from it. According to this doctrine, the returned capital does not only consist, as Mr. Baumgärtner suggests, of carbon dioxide, ammonia, and water but in the entire physical and intellectual contribution that the individual has provided through their existence to the existing human race. Whether this contribution is great or small, it has served to make that existence possible and thus fulfilled its purpose in the moment of existence itself.

What may be the ultimate goals of humanity in the cycle of worlds and whether it will be able to preserve all its treasures, with all its physical and intellectual acquisitions, from ultimate destruction, or whether it will find means to dedicate these treasures to eternity — these are questions that are too far beyond our means of understanding to be seriously discussed. Only

this much is certain, that humanity, woven into the course of civilization, strives with all its forces for a constant intellectual and material perfection for its temporal future. Noble and great spirits irresistibly feel compelled to dedicate their efforts to achieving this goal and the gradual exploration of truth. In nothing more than in such a pursuit does the individual feel that nothing is lost within humanity itself, and that the smallest thought a person has conceived or that we ourselves think remains fruitful for all future. Humanity, just like an individual, is an organism in which the individual enters for a short time like an atom, contributes to the existence of the whole, and then leaves to make way for new and different atoms. But in doing so, the individual has given his existence a specific meaning for the whole, which, as long as it exists, cannot be lost. "Where are the dead?" Schopenhauer asks and answers, "With us! Troy's death and decay, we are all still together!" Nothing could be truer! Not only the physical substances but also the thoughts of our ancestors are within us, with us, and work with us for the future. And precisely the school that is accused of such desolate opinions regarding the destiny of humanity might be the most suitable to clarify these truths for us. For with the eternal cycle of substances, there is also the eternal cycle of the spirit for them, both constantly striving for higher and more perfect forms within a given time. Just as the products of the former continue to propagate through tradition in ever-increasing number and size on future generations, so do the substances from generation to generation, through reproduction and guided by the remarkable law of the heredity of mental faculties or predispositions, continually produce beings more capable of receiving and further developing those products. Even for those who firmly hold the belief in an afterlife, such a view of their earthly destiny for the duration of earthly life itself may appear entirely sufficient, and it is certainly guided by less selfish motives than the opinion of those who consider earthly life only as a prelude to the development of their own personality in an afterlife. As for the author's further views on the polarization of celestial bodies and the habitability or inhabited nature of the sun and the other planets in our solar system, he also goes far beyond the limits of what is within our knowledge. Astronomers, as is well known, often have entirely different views on the habitability of planets, and the decision of such a question must, under all circumstances, be left to the experts, as the mere standpoint of expediency certainly cannot be sufficient for a definite answer here. Astronomy has already achieved so many incredible things that we cannot despair of it providing us with more positive clues to supplement our knowledge in this area in time. However, as for the evidence that Mr. Baumgärtner takes for his assumed polarization of celestial bodies from the conditions of the universe, it must be considered as entirely unsuccessful, and it would indeed be interesting to know what Mr. Baumgärtner specifically means by the expression "on the edge of the world structure." That the universe has an end or an "edge" somewhere is something that no one can actually believe in earnest, and precisely the fact that Mr. Baumgärtner emphasizes — namely, that the universe, although existing for an eternity, has not yet coagulated into a single lump — proves the infinity of the universe and its population with celestial bodies, which hold the balance according to the laws of gravitation in all directions, throughout all spaces. Excluding these and the earlier remarks, Mr. Baumgärtner's book can still be recommended as stimulating and intelligent reading for the educated reader; it is at least another new proof of the great influence that empirical sciences have gradually gained in correcting our general and particularly speculative opinions about the highest interests of humanity.

16. Towards Contemporary Philosophy

(1860)

"In general, I am inclined to believe that by far the greater part, if not all, of our difficulties, which have hindered us philosophers so far and blocked the path to science, are entirely our own fault. We first stirred up the dust and then lamented that we could not see."

Berkeley

A sobering reflection, perhaps too great, has followed the philosophical intoxication of the decades gone by in Germany, and "of all the splendor of this philosophy, only the impression of sophistry remains" (D. F. Gruppe, Present and Future of Philosophy in Germany, 1855). The blame for this rapid obsolescence of speculative systems is certainly not borne by the philosophers themselves or the critical minds among them, as it should have been in a natural course of science; rather, it is the character of the time itself and its inclination towards the real and empirical that may be considered the true cause. This inclination, in turn, is based on the swift and surpassing progress of those sciences which followed a method of research entirely opposed to speculative philosophy, namely, the natural or inductive sciences, in conjunction with the extraordinary advancements in material life itself.

**) C. H. Kirchner, the speculative systems since Kant and the philosophical task of the present. 1860. Allihn and Ziller, Journal for Exact Philosophy in the Spirit of Modern Philosophical Realism. 1860.*

Nevertheless, voices from this side that spoke against speculative philosophy and its method were previously dismissed by its proponents with so much arrogant disdain that, for the uninitiated, it sometimes seemed as if philosophy was being treated unjustly here. This doubt must dissipate, now that voices within the ranks of philosophers themselves are increasing. After the spell has been broken, they are pronouncing judgment on the philosophical past with almost greater determination than the non-philosophical critics. After O. F. Gruppe, in his previously discussed work on speculative philosophy five years ago, mercilessly removed the hypocritical mask from the face and, with equally clear and powerful words, outlined the task of the philosophy of the future, similar voices have been heard more frequently. The authors of the aforementioned writings and their collaborators find that the period of "adventurous idealism from Kant to Hegel has clouded the consciousness of the essence and task of philosophy in wide circles," that "the magic of those systems has gradually lost its effect," and that trust in philosophy as mere "wordplay" is shaken. "One is truly weary," it is literally stated in Allihn and Ziller's journal, "of the three assertions that have been heard for a long time in the idealistic-Spinozistic direction of philosophizing, from Kant to Hegel and beyond. One laughs at the pompous promises, feels disgust at the wild flood of words and the frivolous games of whims and fantasy, and no longer sees the tumultuous distortions of the old orders of correct thinking in the dialectic whirlwind of absolute becoming as any philosophical progress at all." More candid confessions can hardly be expected – confessions that are repeated in detail as the four heroes of subjective idealism are addressed. Thilo is correct in stating that human knowledge is limited in its scope to the extent of human experience, not, as Kant suggests, because the structure of the human mind does not allow it otherwise, but because the data for further knowledge are not given. Therefore, religious belief has nothing to do with philosophy – a truth that Gruppe emphasizes with great determination and without whose full recognition genuine philosophy can hardly be conceived. Unfortunately, Thilo notes that Kant's truths were paralyzed by other flaws in his thinking and by glaring errors. His view that experience teaches only the contingent, not the necessary, has given rise to experience-less philosophy, nihilism, and absolute idealism. In his

philosophy, the seeds for all subsequent degenerations of philosophy lie, even though he himself did not intend it. His psychology is also incorrect. Through his successor and disciple Reinhold, the false assumption that the entire philosophy must be derived from one principle became prevalent, and Kant's successors in general gradually advanced to the assertion that philosophy is nothing less than an absolute, all-encompassing knowledge derived from one principle. Fichte's pure ego is not a concept but a non-concept. His opposition between the absolute self and the non-self, and the eventual union of both, is nothing more than flourishing nonsense. In Fichte's method of thought lies the germ of the notorious Hegelian dialectic. Nature, to which we owe extraordinary results for the development of the human mind today, was, for Fichte, nothing more than a worthless dead mass, a barrier to be overcome for freedom. Fichte's distortion and arrogance went so far that, as Kirchner points out, in his "Science of Knowledge" (1794), he proudly proclaimed that science would completely derive the structure of a blade of grass and the movement of celestial bodies independently of all observation from the simple principle of knowledge—a prediction that, as is known, did not come true! Nevertheless, Fichte eventually broke the spines of his own system and fell into mysticism. With Schelling, according to Allihn, reverse logic was the new order of thought. "Clarity and clarity of concepts, precision of expression, were denoted as the dull pedantry of narrow minds, while indulging in paradoxes or extravagant speeches was considered the hallmark of so-called higher spirits and sought after." (Isn't it still often the case today?) Kirchner calls Fichte's and Schelling's systems attempts to create the universe out of nothing, i.e., from the depths of their own inner selves. Through them and Kant, philosophy became the science of pure thinking, finding its content completely independent of all experience within itself. Both systems ultimately lead to the deepest mysticism. Fichte aimed for the impossible, Schelling dug up high-sounding but hollow phrases, and Hegel finally recreated the world for the second time out of nothing. A general judgment has been passed on him. According to Kirchner, only the preface of his famous "Phenomenology of Spirit" still holds interest today due to the polemic against Schelling; the rest is completely unreadable. Regarding logic, it is stated literally: "Those who first engage with Hegel's logic almost never progress beyond being-for-itself, and I have heard professional philosophers confess that quantity and measure have always remained profound mysteries to them." However, Hegel's greatest blunders are found in his philosophy of nature, where, in necessary consequence of his speculative direction, he assigns nature a subordinate position and views it as the deepest contrast to the idea, as the thoughtless and spiritless, and as a mere intermediary between idea and spirit. Thus, he finds himself everywhere in the most thorough opposition to modern natural sciences, which, in their most important results, especially the astronomical ones, are a sharp thorn in his eye. He would much prefer the Earth to be viewed, as in the past, as the center of all existence and has nothing better to say about the stars than that they are a crack in the sky!! In contrast to the elements of the ancient four elements, which he wants to reintroduce, opposing the chemists' elements, whose reality is denied, he wants to regress the entire field of natural science to the childish perspectives it held in antiquity. Even in legal philosophy and the philosophy of history, where his mind is most freely expressed, he exerts force on the material.

These judgments on the philosophy of the recent past are scarcely milder than those known to have been passed much earlier by a man who, unnoticed as a contemporary of some of those men and only in recent years receiving the deserved attention, Arthur Schopenhauer, namely. Those familiar with his writings know with what ruthlessness and with what annihilating

scorn he launched against the "philosophical charlatans." However, more than his judgment, we may be interested at the present moment in the judgment of a man who, as a non-German, remains distant from our philosophical disputes and to whom, given his knowledge of his writings, no one will deny the capability for such judgment. H. Th. Buckle, in the introduction to his recently published "History of Civilization in England" (translated by A. Ruge, 1860), discusses metaphysics and its method for discovering mental laws. He finds that although metaphysicians are always ready with an answer, their arguments are essentially worthless since their method has never led to any real discoveries. According to Buckle, the metaphysician only studies their own mind, with the mind serving as both the instrument and the material onto which the instrument is applied. Metaphysicians, in his view, are those who believe that the laws of the human mind can only be derived from the facts of individual self-consciousness. They have few means at their disposal and employ them according to a method that has never developed any other science; therefore, we can expect almost nothing from them. Nowhere is there as much movement and as little progress as in philosophy. From the boundless confusion in which it finds itself and the rivalry of schools, not a single principle of importance and undeniable truth emerges; one is further from the truth than ever, indicating a fundamental flaw in the method of inquiry. Philosophy can only be successfully treated through history and nature. "It is certain," says Gruppe, "that among us Germans, especially of the last generations, many have almost lost their lives in speculations that could ultimately only end in general bankruptcy and have been a hindrance to the sciences and, even more so, to art." Under such circumstances, the most immediate and necessary question that present-day science has to solve is naturally the one concerning the purposes and methods that philosophy will now have to pursue, or the philosophy of the present. As clear as this task may be in general to the minds, answering it becomes difficult when delving into the details of the question. Excluding the editors of the aforementioned journal, who, as followers of Herbart, aim to establish the new philosophical realism in his sense, Kirchner provides a relatively short and not further elaborated characterization of what he considers to be the philosophical task of the present. The present, he explains, shows the drive to return from the views of the era of individualism and subjectivism to the immediacy of life, to the fullness and health of realistic reality. It is time to move from critical questions back to substantive ones, from immersion in the depths of the interior to the contemplation of being in its entirety. The new science will not treat thought and being, idea and appearance, as opposing forces but will perceive them in immediate unity. This will result in a completely new perspective; the world of the senses will regain its rights, and the forces of the mind will unfold in free harmony.

However, this doesn't say much. Sharper and more detailed, Gruppe in his referenced work, previously discussed publicly by the author of this essay, outlines the task of contemporary philosophy. Firstly, he emphatically rejects all system-building in philosophy. The era of systems has passed, but true philosophy is now about to begin. This especially applies to speculative systems, which unjustly cast suspicion on the testimony of the senses. The senses themselves do not deceive or mislead, and there is absolutely no certainty surpassing the testimony of the senses. Henceforth, there can be no more speculative systems because there is no more speculative philosophy. The system is our connection, i.e., a constructed, forced connection, not the connection of nature. The system is the childhood of philosophy; its maturity is research. This research can only occur through the Baconian method, a path on which philosophy will henceforth modestly refrain from claiming more than it can with the

current means. Philosophy still retains its central position amid all human knowledge; it is an intellectual power at the center, the heart of the whole, overseeing the unity and coherence of the whole. It also retains several distinct disciplines, such as logic, psychology, aesthetics, ethics, and legal philosophy. A nature philosophy compatible with the spirit of the time must be possible according to Gruppe. Its most important discipline, yet to be treated in a truly philosophical spirit, is found in the history of philosophy. Philosophy must be decisively separated from religion; belief and knowledge are separate spheres. Metaphysics must be irrevocably excluded from the series of philosophical disciplines because, in its nature, there is no way to anchor in concepts and the causes and ultimate principles of things are not given but sought. The task of philosophy is not a finished formalism but rather inquiry and thought in the realm of the reality before us. With all being and thinking, we are rooted in this world; an afterlife exists only for religion, not for philosophy. Philosophy and science are no longer two conflicting authorities but mutually complement each other. The relationship with the religious will henceforth be entirely peaceful; the two domains will no longer touch each other. Inductive research no longer ponders the ultimate ends of existence since it lacks the means to do so.

The author of this essay would like to add the following to these sharp discussions: Should it ever happen that philosophy loses every character of being a science of its own kind, and should it lose the characteristics of a distinct science due to a lack of a unified principle or a specific research foundation, it would still retain its position amidst other sciences as an intermediary and recorder of the most general results. These results are meant to be connected with each other and utilized for the backward illumination of the sciences. In such a position, philosophy would be both a servant and a ruler — a servant by submitting to other sciences regarding material and attempting to connect them with each other, and a ruler by gathering the provided knowledge into a communal structure of the mind, influencing individual disciplines from this vantage point. It goes without saying that philosophy, using the knowledge gained, should approach the questions of the so-called highest things, once considered its exclusive domain, but not go beyond what the current state of sciences and human cognitive abilities allow. Anything beyond this limit can only exist in the realm of faith, not science. Philosophy should never attempt to definitively draw an uncrossable boundary but should strive to continually extend this boundary as far as possible in line with the progress of sciences. Reflecting on past systems, especially those of a speculative nature, is harmful. Only a thorough and sincere reform in line with experience, the inductive method, and common sense, as well as a close connection to positive sciences, especially nature and history, can restore the lost influence of philosophy. The so-called "return to Kant," recommended by some quarters as a remedy, could hardly result in anything better than a, perhaps improved, repetition of the errors following Kant. If Kant's philosophy truly represented what some wish to portray it as in that proposal, it would be difficult to understand how philosophy could have degenerated so much under its influence. Even Schopenhauer, who, admittedly more for external than internal reasons, directly connects his system to Kant, cannot refrain from delivering a devastating critique of Kant's philosophy. He interestingly confesses that one could accuse Kant of contributing to the "philosophical charlatanism so famous in our days, which, instead of recognizing concepts as thoughts abstracted from things, reversely makes concepts the first, and thus peddles the inverted world as a philosophical farce." This, according to Schopenhauer, is the actual cause. Gruppe even unabashedly calls Kant the one who first made the evil incurable. The author of this

essay has long pointed to the only sustainable solution for contemporary philosophy: a change in method and a change in the set goal, or a limitation of its investigations to what is humanly attainable. With this solution, it may refute the opinions of those who, based on past experiences, predict or demand the demise of all philosophy, and be able to secure a position where it remains the heart and core of all human knowledge. In a similar vein, Spieß (Pathologische Physiologie 1857) suggests, "For philosophy, the task would then arise naturally to, instead of futilely pursuing its own higher knowledge, assemble the empirical knowledge of all other sciences into a reasonable whole, and this self-restraint would be its true elevation."

**) Julius Braun (Deutsches Museum, No. 12, 1860) says, "All branches of cultural science have now adopted the principle of accepting nothing but experiential knowledge organized by common sense."*

17. Will and Natural Laws

(1860)

Experience truly teaches us, with all possible evidence, what may seem contradictory at first glance, that society prepares for crime, and the criminal is merely the instrument that executes it."

Quetelet, on man.

Throughout all times, thinkers, often the deepest and most informed among them, have expressed more or less opposition to the freedom of the human will. This puts them in opposition to one of the most common beliefs in daily life, seemingly impervious to philosophical reasoning. For what appears more natural and indisputable to ordinary understanding than that the actions of individuals, both in detail and on a grand scale, depend entirely on their completely free choice and could have been omitted or done just as well? Yet, a deeper insight into the internal connections of nature and history increasingly reveals the opposite to the thinker, showing laws and necessities where the superficial gaze sees only chance or caprice. Just as it happens with the laws of the moral or ethical world as with those of the natural world. As the knowledge of nature advances, chance or caprice step back, to be replaced by laws and their diverse interplay. From a multitude of things or phenomena whose causes are still completely unknown to us, we can already say with certainty that they must be based on natural, yet unexplored laws. If we were to know all the laws of nature, chance could not truly be spoken of anymore. The same experience is gained by one who, guided by modern science, attempts to penetrate the laws of the moral world, finding necessity where the initial appearance seemed to be capricious. To search for these laws and explain human actions as much as possible through them is naturally the task of the true historian, just as the exploration of natural laws is the task of the true naturalist. Unfortunately, this path in history has been very little travelled so far, and it has increasingly been more of a disjointed listing of events over time than a consideration of them in terms of their internal and necessary connections. This deficiency in previous historical writing has inspired the learned and insightful Englishman Heinrich Thomas Buckle to publish his recent History of Civilization in England (translated into German by A. Ruge, Leipzig and Heidelberg, 1860), in which, for the first time, a conscious attempt is made to develop history in connection with the natural sciences and with an exposition of the natural and necessary determining factors that have influenced the development of the human mind. According to Buckle, there is only regularity, not chance, in nature as well as in history, and the higher our insight rises, the more the seemingly accidental disappears. What is called chance in the external world is the free will within us. According to Buckle, this latter is usually derived from self-consciousness. However, he argues that self-consciousness as an independent faculty has never been proven; neither has it been proven that its decisions are infallible. On the contrary, self-consciousness is not viewed by many as a faculty but rather as a state or a mental condition. The entire history provides evidence of its extraordinary uncertainty, and various and contradictory opinions circulate about it. "And indeed, the uncertainty about the existence of self-consciousness as an independent faculty," it is stated on page 16 of the first volume, "and the contradiction to its own statements, if it exists as such, are two of the many reasons that have long convinced me that metaphysics, through the usual method it employs in examining the individual mind, will never rise to the level of a science." (!) According to Buckle, we cannot act without motives; however, these are again a consequence of something that precedes, and if we were familiar with everything that has preceded and all the laws by which it has

occurred, we could predict everything. How often can one predict the actions of a person whose character they know well under certain circumstances! Under similar circumstances, the actions of people must always show the same result. The entire history must be the result of external influences on us and internal influences outward. There are nations where nature influences them more, and others where they or their spirit influences nature more. But there always exists an intimate connection between the actions of humans and the laws of nature, from which follows the high importance and value of the natural sciences for history. "The history of the human mind can only be understood when one connects it with the history and phenomena of the natural universe." Accordingly, in a specific chapter of his general introduction, Buckle examines in detail the influence of climate, food, soil, and natural phenomena as a whole on humans, as well as on state, religion, and society. He flows from numerous fine and excellent observations and remarks. From a favourable combination of climate, soil, and food follows wealth and prosperity, while the extreme north and south, lacking such conditions, are unable to produce anything. In their arid and barren homeland, the Arabs have always remained a crude, uneducated people, no better than wandering savages. But when they conquered Persia, Spain, and India, what a transformation occurred with them! And what a difference in education is evident, for example, between the people of the Nile and the immediately adjacent desert! In Europe, too, civilization was originally determined by climate. Climate and soil produce wealth, and wealth is the most immediate source of power. The influence of food on humans and their character development is thoroughly considered and illuminated with striking examples. It is extensively shown for what reasons related to the conditions of nature the establishment of a lasting culture was possible nowhere else but in Europe. If poverty hinders culture in nature, as in Africa (excluding Egypt), an excessive productivity of nature similarly suppresses and paralyzes human power in unequal struggle. Brazil, for example, provides an example of this latter situation, a country twelve times the size of France but with only six million inhabitants. Similar, not for lasting culture, were Central America, Mexico, and Peru, and strangely enough, the ancient civilizations of Mexico and Peru, conditioned by similar or identical natural conditions, are said to be quite similar to those of India and Egypt, with the institution of castes and the inclination to build immense structures cited as evidence. In any case, to not hinder the course of civilization, the phenomena of nature must not be too great and overwhelming, not overly stimulate the imagination. Where earthquakes, wild animals, hurricanes, storms, health uncertainties, and the like exert too powerful an influence on humans, superstition, fear, and the like find too much support, and the imagination develops excessively at the expense of reason. Thus, in non-European cultural lands, nature, in a way, conspired to increase the power of imagination and weaken reason. Think of the unrestrained imagination displayed in ancient Indian poetry, the despotic and ruthless character of oriental history, and the fact that the most popular gods and kings there have always been the most terrible and despotic. Opposite conditions are encountered in Europe and accordingly, initially in Greece, a completely different, even often opposite, development of humanity in state, religion, customs, etc. While in Asia, nature dominates humans, in Europe, humans dominate nature, and with increasing development, humans have always learned more and more to master nature. It is a superstition that people were once more virtuous, stronger, healthier, or older; on the contrary, we possess all these advantages ourselves today to a greater extent, and the excessive veneration of antiquity is nothing more than a prejudice. Hence, in Europe, the human mind itself is studied more than nature.

Buckle rightly places special importance on the question of free will in the well-known science of statistics, which is predominantly cultivated in England. This science demonstrates and proves the uniformity of all phenomena, showing that the immoral actions of people vary depending on changes in the surrounding society. According to him, murder, for example, is committed with the same regularity as the ebb and flow and the changing seasons under given circumstances. Similarly, suicide, even though one would least expect it, follows a certain pattern; crimes recur in a specific schema, as do marriages, with statistics revealing their correlation to the prices of grain and labour wages.

A philosopher who does not start from preconceived opinions but takes experience and reality as the guide to his thinking must arrive at similar results. Recently, a German thinker (Frauenstädt in an article: "The Natural Laws of the Moral World") has emphasized the necessary connection between the moral and natural worlds. According to him, there is no distinction between natural law and moral law, and the dualism between them must disappear in the modern worldview just as the dualism between body and soul. Frauenstädt dismisses Kant's categorical imperative, which asserts that the moral law has no empirical source but arises a priori from reason, as nothing more than a great prejudice that has been irrationally followed. There are not one but various and only relative imperatives, and there is no one moral standard for everyone; the so-called normal human being does not exist. A moral guideline that could serve everyone in every situation would only lead to immorality. We can only gain knowledge of moral law through experience: natural and moral coincide, and feeling and inclination are the sources of virtue. That in nature, there is only necessity, and in the moral world, there is only obligation, is a traditional prejudice; in both, conditional necessity prevails. There are neither virtuous heroes nor pure villains (as occasionally depicted by overly imaginative poets lacking a real understanding of the human heart), but rather mixed beings who act one way or another depending on the conditions under which they live. Therefore, if we change these conditions, we also change the result and can thus reduce sin, which is much more a result of illness and error than genuine guilt. Society, which so harshly and ruthlessly pursues crime, would certainly do better to occasionally look within itself and ask the question of what circumstances and deficiencies it itself bears responsibility for in the crimes committed against it. Not only entire categories of crimes, such as infanticide, political crimes, and so on, are an almost immediate consequence of specific societal conditions, but also in the personal history of each individual criminal, these influences can be demonstrated with almost unbelievable clarity. While it may be impossible to conceive a state of society in which all crimes would be eradicated, hardly anyone would deny that at least such a state is conceivable in which the number of crimes is reduced to a minimum by the utmost possible elimination of the factors that cause them. Hence, a philosophy that promotes such insights must lead not, as is often claimed by foolish people, to the barbarization but rather to the humanization of humanity!

18. A New Theory of Creation

(1860)

"Throughout the entire world of the living, there is an uninterrupted procession of metamorphosis from the beginning, but at such a pace that at any given moment, the movement appears to be at rest, like the starry sky, where, in truth, everything is moving apart and spreading out, and the classes, families, and genera of the animal kingdom appear to our eyes as firmly outlined constellations, and the microscopic animal world like nebulous spots."

Morning Paper, Nos. 1 and 2, 1862.

Only a few years have passed since the author of this essay expressed hope, in a discussion on the growth of the organic world on Earth, that later research on this crucial question and the natural causes of this remarkable phenomenon would shed a more precise light—and now there is a work before us that seems indeed capable of spreading this light and, to some extent, solving the greatest puzzle of natural science, the secret of secrets, as an English philosopher calls it. A learned, insightful, and independent Englishman, Charles Darwin, the famous naturalist of the Beagle's circumnavigation, has devoted twenty years of his life to the exploration of a question that, until now, seemed to defy the greatest efforts of scholars for scientific understanding. He has proposed a theory that makes one wonder whether to admire more the acumen and erudition of its author or the simplicity it reveals in the workings of nature. Similar attempts to elucidate the natural history of creation had been made before Darwin, as his translator, Prof. Bronn in Heidelberg, expresses sharply, "ideas without any foundation and incapable of withstanding examination according to the current state of science." Nevertheless, Bronn continues, "every naturalist has felt that the assumption of the Creator's personal activity each time to call into existence the countless plant and animal species and adapt them to their conditions of existence is in contradiction with all phenomena in the inorganic nature, which are regulated by a few unchangeable laws, by forces inherent in the substances themselves." First, it was the Frenchman Lamarck who, in two zoological works in 1809 and 1815, openly expressed his opinion that current life forms had emerged through transformation from earlier forms, as a result of external conditions, crossbreeding, use and disuse of organs, habit, and finally, a prevailing law of progressive development. In this process, the lowest life forms were assumed to be continuously formed anew through spontaneous generation. His often-misunderstood opinion seemed for a long time to be under the curse of ridicule, even though his famous contemporary Geoffroy St. Hilaire harbored similar suspicions, only openly confessing them in 1828, albeit with great caution. Following this, in the preface to his book under consideration, "On the Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life" (translated by Bronn, Stuttgart 1860), Darwin mentions a whole series of English and French writers from 1837-1859, including theological ones, who all declared, to varying degrees, that the introduction of new species into creation could not be a miracle but only a natural phenomenon. The assumption of special, continuous acts of creation, Prof. Hurley stated in 1859, contradicts the facts of the Bible and the general analogy in nature. Meanwhile, the hypothesis that the forms or species of living beings, as we know them, have arisen through the gradual modification of previously existing types, is the only one that gives physiology some support. It is, therefore, the most acceptable and, at least for now, one that is gaining the provisional approval of the best thinkers of the day.

Darwin himself expresses in the introduction his definite conviction that the idea that each species was created independently of others is decidedly incorrect and that species are not immutable, although much remains dark and unexplained due to the inadequacy of our knowledge. He argues that it is easy to conclude that each species is not independently created but originates from others. However, this is not enough until the manner of the change can be demonstrated. He designates a process that he calls natural selection in the struggle for existence as the means and principal factor for the modification of species. According to him, every organism species is variable within certain limits, a fact that is generally accepted. If the modification is useless, it disappears or remains without consequences. On the other hand, if it is beneficial, it gives the individual an advantage over its peers, thereby increasing its chances of preserving itself and its offspring. In this way, a variety or subspecies arises, from which, if the same process continues for 100, 1000, 10000 generations, new species, families, orders eventually emerge, while the intermediate forms or less favoured forms perish for various reasons. This principle has no limits. It only requires time, which, as is well known, is in no way lacking in the history of the Earth. 248 (Volger calculates alone the time required for the deposition of the Earth's stratified structure to be 648 million years.) In this way, Darwin eventually arrives at the assumption of the descent of all living beings from a few initially created forms or ancestral species with subsequent modification (approximately four to five for the animal kingdom and the same for the plant kingdom), or, in a more consistent pursuit of his thought according to the laws of analogy, a single initially created archetype, perhaps a cell, a germ vesicle, or, as the overseer, Prof. Bronn, more precisely expresses it, an algal cell, a filamentous alga, from which, through a great law of development and advancement, the creative series gradually rose to its present height! This fundamental idea, only outlined here in its main contours, is now developed by Darwin in fourteen chapters in a strictly logical manner and supported by a whole armada of facts, self-observations, and keen reflections. Far from concealing the significant difficulties of his theory, he instead openly presents them in four separate chapters and knows how to address them in a often surprising manner. Nevertheless, Darwin wants his book to be considered only as a preliminary publication and an imperfect extract to which he can only add a few explanatory facts, while his actual, fully-equipped work with all the collected facts may appear several years later. (This temporary publication is made due to weak health and because Mr. Wallace, on the Malay Archipelago, has arrived at very similar results and is publishing about them.) "If these views on the origin of species, set forth by me and Mr. Wallace or other analogous views, are admitted," says Darwin in his concluding chapter, "it can be foreseen that a great revolution awaits natural history. Systematists will feel relief from great worries, and the futile search for the unknown and undiscoverable essence of species will cease. Other and more general branches of natural history will gain much interest; the terms relationship, type, morphology, etc., will gain a substantive meaning instead of the previous figurative one, and thereby the study of natural history in general will become infinitely more appealing (the author of this essay would like to add: more philosophical). A vast and almost unexplored field for research on the changes of organisms and their causes will open, and the study of cultural products will immensely increase in value. The existing classifications will turn into genealogies and then only will reveal the real so-called plan of creation. Geology will be able to outline a complete picture of the former migrations of Earth's inhabitants, and the entire history of the organic world, as far as it is known, will prove to be of an inconceivable length to us, yet only a small fragment of the

time that must have elapsed since the creation of the first creature, the progenitor of all beings." Finally, Darwin foresees a powerful influence on physiology, which will gradually have to rely on a new foundation and acknowledge that every capacity and faculty of the mind can only be acquired gradually! (An idea as remarkable and fruitful, on which, as Darwin reports in the preface, H. Spencer attempted to rework the philosophy of mind as early as 1855.) Finally, the insightful author casts a prophetic gaze into the future and points to the perfection law revealed by his theory, according to which, presumably, ever more beautiful, higher, and more perfect forms will develop from the currently living beings.

The English botanist Hooker, who published a book on the flora of Australia immediately after Darwin, applying Darwin's principles to botany, elaborates on this latter idea concerning humans. He illustrates how the youngest and therefore best-adapted human races, Caucasians and Africans, seem to be destined by nature to overcome and displace the older races, especially Polynesians and Native Americans, in the struggle for existence. The former prevail in temperate climates, while the latter dominate in hot climates, leading humanity towards continuous improvement. Besides him, who considers the "doctrine of progress" the deepest of all that has ever stirred up natural historical schools and, along with the previously mentioned Wallace, other renowned naturalists in England, such as Chell and Owen, have also declared their support for Darwin and his theory. His translator Bronn describes the way Darwin discusses his subject as a model of natural philosophical treatment and believes that since Chell's "Principles of Geology," no work has been published that promises such a significant transformation of the entire natural historical science. He calls it a marvellous book, devoid of telescopic discoveries, new elemental substances, anatomical revelations from a ten-thousandfold magnifying microscope, or the like, containing only new perspectives under which old facts collected for twenty years are considered. With clarity, intellect, and logic, the author seeks to demonstrate a fundamental law in the being and becoming of the organic world, and his theory, by providing the possibility of a simple and unified explanation for a hitherto unexplained world of phenomena, exerts a great attraction. It is anticipated that the theory will not perish, as it breaks a new path and at least shows the way to finding the great law of development and advancement in the organic world. Nevertheless, it must be acknowledged that the new theory still faces significant and important objections and obstacles, the resolution of which by the originator of the theory is not entirely certain. These objections are highlighted with precision and acumen by him, who himself bears a famous name in the theoretical exploration of nature, and will likely continue to pose a considerable difficulty for the broader acceptance of Darwin's theory, which overturns much of what has been previously considered correct. Perhaps, Bronn suggests candidly, we still see through coloured glasses; maybe the solution to the great puzzle has indeed been found, but due to the long habituation to different perspectives, we are unable to see it, and our descendants will judge differently in a few human generations. In any case, an intense dispute in the scholarly world is imminent due to the new theory, where scholars will have to decide whether the natural law found by Darwin is sufficient to explain a phenomenon as wondrous as the growth of the organic world on Earth in a natural way, or whether, as the author of this article finds more likely, other, hitherto unknown or only suspected elements must be brought in—elements that may be related to the remarkable processes of the recently better understood generational change in animals and with alterations in individual organic germs for unknown reasons. Darwin, as Bronn expressly acknowledges, has underestimated the powerful influence of external living conditions on

both existing and emerging natural beings, while simultaneously creating a difficulty for himself, which may not actually exist. Namely, when he presents the very beginning of organic life on Earth as incomprehensible or cloaked in the form of a miracle, it should be remembered, firstly, that the contentious issue of so-called spontaneous generation is by no means resolved, and on the contrary, very weighty voices have recently been raised in favor of this type of generation. A circumstance that may have contributed to this is that, as Bronn recounts, the French Academy is once again conducting experiments in this direction. Secondly, a recent direction in geology, from a known beginning of organic life on Earth, wants to know nothing more. However, this does not directly touch the whole theory, as it is more concerned with development than the beginning. The idea that the entire organic world may have developed from a first and smallest organic form element (cell) through countless intermediate stages and with the help of infinite spans of time to its current height and formation is not considered more remarkable or adventurous by Bronn himself than an actual event that we observe daily under our eyes — the gradual development of an organic being from its first germ cell. For those who want to form an independent judgment on the Darwinian theory, they must read the remarkable book itself, as only the main idea could be outlined in its broadest strokes here, and delving into the justification of it would have led to excessive detail. Even apart from the theory, the book contains so much that is beautiful, instructive, and fruitful for science in general that no attentive reader will regret the time spent on it. Especially noteworthy are the reasons and facts that Darwin presents against teleological or purpose-based views of nature; they are so excellent and compelling that anyone not adhering to preconceived opinions must be convinced. Therefore, it can be expected that an indirect influence on the direction of our time's education will not be absent from his book. In any case, natural philosophical directions, like the one the author of this article opposed to Professor Agassiz, will suffer an incurable blow; and the necessity for science to somehow understand the reason behind these phenomena becomes clear and close at hand.

It is a fact that organic species continually become extinct without the world becoming emptier, and from this, it logically follows that new species must take their place through some natural process. The laws of this process, however, must be found, assuming they have not already been found by Darwin. Most likely, his entire theory will ultimately be recognized as correct but one-sided and insufficient for what it intends to achieve. That the struggle for existence, in conjunction with the inheritance of acquired powers and peculiarities (for which numerous examples and experiences exist), must have formed one of the causes for the growth of the organic world on Earth can hardly be doubted after his exposition. However, that it was the sole cause is neither credible nor supported by the facts. In particular, the influence of external circumstances and living conditions on the transformation of natural entities — as mentioned earlier — is much more significant than Darwin believes, and almost every new discovery or observation in science provides new evidence for the powerful impact of this influence, which Darwin seems to have underestimated only for the sake of his theory.

19. Mind and Body

(Spirit and Body in their interrelationships, with attempts at a scientific explanation. By K. Reclam, lecturer at the University of Leipzig. Leipzig and Heidelberg, 1859. - J. G. Fichte: Anthropology or Doctrine of the Human Soul, newly founded on a scientific basis, 2nd ed. 1860.)

(1860)

In the first mentioned work, the author, known to the general public, especially as the editor of "Kosmos," a journal for applied natural sciences, takes on the task of discussing one of the most burning scientific questions of the present, namely the question of the relationship between spirit and body, from a scientific standpoint. This undertaking must be all the more gratefully acknowledged, considering how rarely men of narrower scientific pursuits have delved into this highly important question in a more comprehensive manner. The pursuit of truth—a pursuit that characterizes noble and virtuous minds everywhere—has, as the author says in the introduction, driven him to his decision. In the manner of a true naturalist, he immediately indicates certain limits, beyond which current science is not yet able to go, and promises to focus more on the so-called preliminary questions than on the actual decision, which is not currently possible. These limits are recognized by anyone wanting to navigate scientific terrain, and the extent of these limits is the only point of contention. In the first section, the author discusses the dominance of the nerves over matter and their interdependence, providing some interesting evidence of the one-sidedness of the general worldview, which has typically followed almost every major discovery in the natural sciences. However, such biases are not without deeper historical significance and are often necessary to fully illuminate a new discovery, without significantly hindering or confusing the overall progress of science. The author then demonstrates how the nerves govern metabolism and, conversely, are dependent on it — matters somewhat tangential to the central theme of the book's accusation. Towards the end of this section, the author, referring to a statement by Huschke, calls natural philosophers those who uphold the lawful unity of mind and body, proclaiming, "If this is what philosophy of nature wants and does, its recently discredited name will soon be restored to honour, and to greater honour than ever before!"

The second section explores the dependence of the mind on the body and its power over it, acknowledging that natural science cannot precisely know the manner in which this mutual connection occurs. The challenging aspect of research here lies in the inaccessibility of the central nervous apparatus during life, as well as in its extremely delicate and hard-to-follow structure. Yet, according to Reclam, all experiences point to the indispensability of the brain and spinal cord for the exercise of mental faculties in both humans and animals. It is established that the lowest human races and the least intelligent animals possess relatively smaller and simpler brains, with the human brain being the most developed and intricately composed in its various parts. Similarly, exceptionally gifted individuals have well-developed brains, while idiots and cretins have deficient ones. Furthermore, it is known that a certain state of brain health is necessary for the unimpaired execution of mental functions, especially regular and abundant nutrition. Therefore, blood deficiency hampers thought processes, similar to the state of digestion, during which blood flow is directed more towards other organs than the brain. Disturbances in blood circulation in the pelvic organs impair mental functions and can even induce mental illness. Poor nutrition, lack of fresh air, and the like reduce cognitive abilities, while narcotic substances introduced into the body significantly alter cognitive activity. Momentary conditions of physical organs, such as the stomach

through disgust, immediately interrupt the train of thought, and deprivation diminishes courage, working ability, and self-esteem. Additionally, physical states give rise to mental perceptions, illustrated by the known effects of Hashish or Indian hemp, pathological hallucinations, Fata Morgana, Ragl, and similar examples. It is interesting to note, as cited by Graf Escahrac, that the visual illusions in Ragl, among different participants in a society, have analogies but differ according to the character and educational level of those affected. A Bedouin who has never seen trees will not perceive a forest around him; where we see a carriage, the Arab will see a camel, instead of a church tower, a minaret, and so on. In the same way, the nightly dream images of the healthy, as well as the sensory illusions of the feverish or mentally ill, vary depending on the different level of education and the perspectives gained in life. These are experiences that prove that even when the soul steps out of its ordinary circumstances, it remains firmly bound to the impressions of its current past and the laws of its sensualistic origin.

As examples illustrating the retrograde influence of the mind on the body, Reclam mentions the expressions of will, which only gradually gain full control through practice; also, the movements and excretions resulting from fear, terror, lust, etc., the influences of sorrow or joy on appetite and nutrition, the conspicuous effects of the imagination or intense mental excitement, and so on. Then follow some examples of brain displacements, from which the author concludes that "the general interaction of brain parts is a necessary intermediary for the regular execution of human mental functions." The third section contains the vehement defense against an attack on the physiological sciences launched by Mr. Frohschammer, Professor of Philosophy in Munich, in the supplements to the Augsburg General Newspaper from May 25 to June 7, 1855. Since Frohschammer not only insults his opponent K. Vogt but also denigrates the natural sciences as a whole, it is a duty to respond to him. It is demonstrated that Mr. F., in his letters on "Human Soul and Physiology," talks about color like a blind person, and his objections have the value of a mere "word fencing" for the naturalist. Mr. F.'s entire conception of physiology and the natural sciences, in general, is shown to be such that he appears completely incapable of a thorough assessment of the relevant questions and seems to deserve the stern rebuke from Reclam.

The fourth section is titled: Sum or Whole? and discusses one of the most significant differences in the perceptions of philosophy and natural science, as the former increasingly focuses on the whole, while the latter tends to emphasize the parts. The common philosophical assumption that the "whole" is something more than the "sum" of its individual parts, though extremely appealing and ingratiating, is incorrect and contradicts the views of natural science. Therefore, according to Reclam, in demonstrating the causal connection between the individual parts of an organism, there is no need for a "principle of life," no need for a "vital force," and no need to assume a difference between the "whole" and the "sum." When philosophers outside the field of natural science observe living beings, it is akin to an uneducated person marveling at a locomotive – they see it as a miraculous thing with observable effects, but the driving forces remain incomprehensible. While, for now, natural science cannot conclusively prove that all human activities are solely a result of the sum of individual parts, or that there is no separate "whole" beyond them, the analogy suggests that it is unnecessary to posit a distinct "whole." Direct proof of this will likely be within the capability of future times.

The fifth section is titled: Essentially Different or Not? and strives to elucidate the compelling influence of scientific evidence on the philosophical standpoint. Stating that the brain is active during thinking is now widely accepted, with even opponents of physiology acknowledging the centrality of brain function. The question then becomes whether the brain, in and of itself, suffices to produce these functions, or whether it additionally requires the assumption of an "external force acting on and dominating the brain as an independent, immaterial cause"? Natural science is content with the former explanation, while philosophy, on the other hand, does not and simultaneously denies natural science the right to attempt to solve the question in its own way with its own means because the functioning of the brain is "essentially different" from the functioning of other organs. This claim of "essential difference" is examined in detail, and it is demonstrated in specifics that such a difference does not and cannot exist anatomically, chemically, or functionally. Removing the brain or a part of it results in the loss of its functions in perceiving, imagining, and judging, just as the ongoing function of a muscle is lost when it is cut or removed. Conversely, the brain of a scholar is strengthened through mental exercise, just as the muscles of a blacksmith or a locksmith are strengthened through physical work, and the weight of the brain increases with growing mental power and decreases with advanced age. Among intellectually gifted individuals, the heaviest brains have been found, exemplified by Dupuytren, Cuvier, Cromwell, and Byron, according to Reclam. Furthermore, higher races consistently have larger and better-organized brains than lower races. Additionally, in all races, males have larger brains than females. This law holds true throughout the animal kingdom, so that "the higher an animal stands, the larger its brain is." Considering all these observations, the relationship between brain mass and the degree of intellectual abilities cannot be denied. Magendie stated decades ago that it would be rare to find a man distinguished by his abilities who did not also have a large head. But this size naturally only indicates potential and capability for development, not the degree of existing development and thus the actual performance itself. The size of the body also influences the size of the brain. Abnormal smallness of the brain is almost instinctively associated with low intellectual abilities, while a well-developed forehead gives everyone the impression of a superior thinker. Brain atrophy, in the language of science, is synonymous with an inability to perform mental functions. Furthermore, chemistry has provided interesting clues and shown that in the nervous system, "a substance of such labile chemical standpoint (as Lehmann expresses it), of such mobility in its closer and closest components" is accumulated, "which we hardly find in any other organ of the animal body." Regarding the fat content of the brain, Bibra has demonstrated that this content appears larger, "the more organized an animal is and the more intelligence it possesses." It is also proven that nerve substance depends on its chemical composition and that its performance capacity is greater the more it can extract its unique nutrients from the blood—a process that can only occur chemically. Based on sufficient reasons, the renowned Ludwig (Textbook of Physiology) acknowledges the assumption that the cause of power development in the nerves, as with all other body organs, is to be sought in the chemical transformation of substances.

The study of diseases also shows that nerves are dependent on the chemical constitution of the blood, and any change in blood mixture manifests itself in nerve function. This can be observed especially in individuals suffering from anaemia. Nerves are the finest chemical reagents available. Through such and similar considerations, Reclam concludes that nerve and muscle are not "essentially" different from each other, and he accompanies this

conclusion with the words: "What insults have not the philosophers spoken and written in recent decades; what indecent, crude, and vulgar treatment has been bestowed upon the natural sciences by some theologians because of this statement; nevertheless, we must repeat it because the power of truth and the force of facts stand higher for us than the clamour of some narrow minds." The sixth section discusses the current state of natural science and the criticisms raised against it. Reclam convincingly argues that contemporary natural scientists have not arrived at their often erroneously labeled "materialistic" views lightly or frivolously but rather guided by scientifically acquired facts through sober observation. While their need and basis lie in seeking the causes of all phenomena, the assumptions made by so-called Spiritualists regarding the essence of the soul surpass human means of understanding in all respects and resort to an inexplicable miracle to explain something obscure and unexplained. According to Reclam, the concept of "Materialism in natural science" can reasonably only extend to the interpretation of mental abilities as a function of the brain—dependent and inseparable from the material foundation of the physical organ—while "Materialism as a philosophical system" goes further, drawing consequences beyond natural science, making it beyond its immediate judgment. It is thoughtless to confuse the so-called "material direction of the time" with "Materialism in natural science" and, worse, to blame the former on the latter! The current standpoint of natural science is much less materialistic and more realistic. The author questions who, under these circumstances, is more deserving of the charge of frivolous or careless mentality: the natural scientist who adheres to the factual, etc., or the philosopher who seeks to appease the human urge for knowledge by "postulating" some possibility and endeavors to defend it with more or less ingenuity through dialectics. Concerning certain general consequences drawn from recent results of natural science, particularly regarding the persistence of the soul, the author expresses that natural science has no authority to pass judgment on it. According to him, there is no empirical evidence of future life and eternity. Natural science cannot deny or prove the supernatural but must leave its existence undecided. While this modesty on the part of individual natural scientists may be commendable, it is regrettable that the same modesty is not found in theologians and philosophers. Instead of, as natural science does, casting doubt on the existence of the supernatural, they revel in its domain with the greatest pleasure. Nothing would be more desirable for them and their most reactionary direction than the abandonment of all positions beyond the mere field of observation by natural science. If the author's views were followed to their consequences, everything significant accomplished by empirical science would be questioned again in its general scientific significance, and the entire and vast field of the supernatural and supernatural, the "miracle" in faith and science, would be unquestionably given to the opponents of natural science. That the author himself had the least intention of all this is evident from his previously cited statements, and he likely meant to say that the immediate object of natural science can only be the sensibly given. The situation changes when one attempts to examine the results found through this method for their philosophical significance. This indeed departs from the immediate ground of natural science and enters the territory of general knowledge, where all branches of human knowledge equally have to contribute to its cultivation. None of them may be more qualified for this at this moment than the natural science that has advanced so powerfully in recent decades, and all voices call for it as a saviour from the previous philosophical and theological confusion. "The oft-heard assertion that philosophy and natural science have nothing to do with each other (as the author of this piece wrote on a previous occasion), because the former deals with the essence,

while the latter only concerns itself with the sensory appearance of things, is simply based on a confusion between natural science and natural philosophy. The naturalist may be right when he limits himself to his subject and does not consider anything beyond as his concern; however, natural science records the results found by the researcher, connects them with each other, and with the general interests of humanity." A limit can be set for him, up to which he wants or believes he can go in interpreting the results found by science, and the eternal laws of correct thinking are the only judge of the truth or falsehood of his interpretations. Anyone unnecessarily restraining or attempting to set certain limits to research, which it should not exceed, would only hinder the progress of truth and human knowledge, without being able to stop it in the long run. Mr. Reclam did not want this even more so, as in the further course of the section in question, he strongly defends natural science against some equally ridiculous as false accusations that it has received in the disputes of recent years. Such accusations include claims that it is hostile to morality or promotes frivolity, and so on. On the contrary, according to him, due to the ennobling influence of science in general, it promotes real virtues and a uniform development of body and mind better than all theology. Indeed, according to Reclam, even if one were to admit and introduce all the recently drawn materialistic and atheistic consequences from the natural sciences into life, the example of a great and educated people on earth would prove that all the feared disadvantages are mere fantasies. According to him, the Japanese have embraced the "materialistic" view to such an extent that they generally deny the continuation after death and adhere to atheism. Yet, it is not known that they stand any lower in morality and manners than any of the so-called civilized nations. Arts and sciences flourish among them to such an extent that even the soldiers in the waiting rooms spend their time not with drinking, smoking, and playing, but with reading poems and essays, as well as engaging in scholarly debates. All travelers agree that they have not seen a people more educated and considerate in their behavior across all layers of the population, more shrewd and upright in dealings, and whose state institutions appear more punctually organized than is the case with the Japanese. "And yet," exclaims the American Burrows, who visited their beautifully organized cemetery, "the Japanese are a nation of atheists!" In his subsequent polemic against Moleschott, the author could have been somewhat less attentive to individual weaknesses and somewhat fairer to his great merits and outstanding abilities.

In the seventeenth and final section, one of the most interesting and important questions of philosophical contemplation, namely the question of animal soul and so-called instinct, is extensively discussed, supported by real observation and self-reflection. Given the importance and independent status of this question, which has been largely buried in speculative philosophical systems and is only now beginning to be philosophically treated from truly experiential perspectives, it may be excused if the present discussion does not touch on this section further and suggests a separate treatment of it in conjunction with some other relevant writings in a dedicated essay.

Thus, Mr. Reclam's book is a rich and commendable contribution to the resolution or at least the illumination of questions and matters that are most dear to the present, and every educated person who takes an interest in these questions will be able to draw instruction for the mind and heart from it. The book is appropriately dedicated to His Highness Duke Ernst of Saxe-

Coburg-Gotha, demonstrating that free inquiry is not absent even from the thrones of its supporters.

Regarding the author's perspectives and their relation to general viewpoints in psychological science, as the attentive reader may have noticed, they are originally more dualistic, despite the author's reassurance, as nerves and substance, mind and body are opposed from the outset. As the title suggests, they are intended to be delineated in their mutual relationships. However, later, compelled by the force of facts and their own logic, the author leans more towards monistic-materialistic views, explicitly discussing the "mental function" of the brain, "thought processes," and so forth. Nevertheless, a closer examination of the internal relationship between body and mind or an actual explanation thereof is avoided and rightly so, as our current knowledge provides too few real clues for such an explanation, and the true internal connections of what we call body and mind will likely remain a mystery for us. Unless one were to assume that the mystery has recently been satisfactorily solved by the explanations of Mr. Immanuel Hermann Fichte, Professor in Tübingen, whose Anthropology or Doctrine of the Human Soul, newly founded on a scientific basis for naturalists, soul physicians, and the scientifically educated in general, 2nd edition 1860, forms an interesting contrast to Mr. Reclam's book in almost all respects. Through the old speculative philosophy, Mr. Fichte has consciously discovered that neither dualistic nor monistic opinions contain the truth, but rather a complete interdependence of body and soul, a similarity of essence between the two. After asserting the identity of mind and nature, soul and body in even greater consequence, and incidentally calling the soul a real but individual being, there is suddenly a reversal into extreme spiritualism, claiming that the soul shapes its body itself and that life processes are soul activities. "The body," it says, "is only the outwardly turned, space-time representing soul itself, the expression of its peculiar soul hood or nature." At the same time, the being of the soul in space and time is to be denied, just as its lack of space and time is!! "Organic functions are to be explained from the unconscious, enduring activity of the soul." This is followed by the acceptance of a "threefold relationship of spirit, organic power, and bodily substances"—so that unity, duality, and trinity all find their representation, catering to the needs of all schools. But the betraying flaw comes to light as soon as the philosophical ship of Mr. Fichte enters somewhat narrower waters, and more concrete questions come into play. Philosophically and theologically, it is then demonstrated that life is a mere "preparatory state" for the hereafter and that the soul, in death, sheds the "chemical material world" from itself! In matters of the persistence of souls, not only a general one for animal and human souls but also, as this would not suffice for humans, a particular individual one has been philosophically and empirically proven by Jakob Moleschott, who was expelled from Heidelberg and newly appointed to academic duties in free Switzerland by rational-thinking men. Empirically, it manifests in clairvoyance and ecstasy, to which a dedicated chapter is filled with incredible claims and truly antediluvian logic. According to Fichte, these states are based on a "temporary relative disembodiment," on "anticipations or precursors of death," which, upon closer examination, could provide "an almost certain insight into the state after death." Moreover, through asceticism or the tormenting of the body, the so-called "inner body" or "pneumatic organism," according to Fichte, distinguishes itself from the ordinary or outer body, and its visionary power unfolds in such a way that a connection occurs between the sensually living and the departed, even if only through internal clairvoyance or waking

dreams! In this process, there is a higher, surpassing the ordinary limits of sensory-physical knowledge, seeing. In death, only the "inner body" remains, and the future state is a state of "complete insensibility." Clairvoyance itself is prophetic waking dream and occurs without nerve mediation, as the soul, under specific circumstances according to Fichte, can also act without the mediation of the organs that usually serve it! In it, there is a suspension of the usual connection between body and soul, a freer release of consciousness, an increased mental power, leading to the conclusion that the soul must also be capable of consciousness without the body and the nerve apparatus of consciousness, which consciousness is labeled with the name "otherworldly." In this context, it can only be that the body is, in contradiction to the theories presented in the general part, considered only as a binding and limitation of mental seeing and acting. Indeed, even in spirits and possession, Mr. Fichte seems to seriously believe! One can only wonder why table-turning does not also play a role among the listed demonstrations. And such things are dared to be presented from the lectern as philosophy and even as "scientifically founded" philosophy in an age in which Alexander von Humboldt lived, and in which science has demonstrated the inviolable regularity of all natural phenomena! Mr. Fichte complains about physiology because it does not devote more attentive research to his "states." If he had taken the trouble to get to know this science and the related preparatory sciences a little more precisely, he would have been able to convince himself of three things: 1) the reasons why physiology, which certainly lacks the least effort in the extraordinary efforts to explore the truth, has been criticized by him for its behavior; 2) that the "heat substance," against which Mr. Fichte polemicizes, today exists only in his own opinion, but not in science; 3) that there is no shortage of examples of irregularity or impracticality in the organism, which Mr. Fichte himself demands to make his entire theory of life processes as soul devices untenable, in reality, so little so that entire pages could be filled with their enumeration. Doubts about the "organic power" and the "dynamic presence of the soul" in all parts of the body might then have arisen modestly for him. However, since Mr. Fichte has neglected this study, we should not be surprised that in his further elaborations regarding the temporal origin of the soul, the origin of individual souls, and conception in general, he puts forth things reminiscent of the worst times of natural philosophy. It is also not surprising that he presupposes among the opponents of his views an "empirically hardened sense." Finally, Mr. Fichte grants rights to animals, as the animal organism is only the externally realized image of the soul's peculiarity of the animal, described as a physically symbolized animal soul, and transitions from it to humans are acknowledged. However, the animal remains a "natural" being, while the human is a "supernatural" being, whose spirit is characterized by the a priori content of its ideas. Every human is a genius, a discovery which, incidentally, the eternally younger Fichte likely did not make about himself.

Anyone still doubting that speculative philosophy, despite its great and truly unshakeable self-confidence, lacks the means to provide even a reasonably sufficient explanation of the relationship between body and mind, may see these doubts dissipate upon a critical reading of Fichte's book. Meanwhile, the modest but factual explanations of a man like Reclam will at least inspire respect for science and guide him to a point where, although the means for further knowledge may be lacking, he can at least feel solid ground under his feet with some truth in possession.

20. The Organic Hierarchy or the Progression of Life

(1861)

"All forms are similar, yet none resembles the other, And thus the chorus points to a secret law."

Goethe

Every step we take on our Mother Earth leads us over the graves of millions of beings that lived and died millions of years before us, leaving their traces or images in the rocks that stretch beneath our feet. The scholars of past centuries considered these remarkable images as mere whims of nature, without gaining a hint of their deeper and more mysterious significance—although the Greek philosopher Xenophanes (the formidable opponent of Greek gods) had set a better example 2400 years before our era. He declared the fossilized animals to be formerly living creatures and deduced from the seashells found on mountains, as well as from the imprints of the shapes of fish and seals on stones discovered in quarries at Smyrna, Paros, and Syracuse, that the Earth was once covered with water! Today, advanced science reads from these stones and images, as from an old historical chronicle, the history of an almost endless past and a long, long series of living beings that populated the Earth before us, living, fighting, and suffering on it in the same way as its current inhabitants. How do these beings relate to those living on Earth today? Have they always been the same, or have they gradually evolved in increasing perfection to their current height, with our own species, humans, representing their latest pinnacle? All of these are questions that deeply stir the mind of every thinking and truth-seeking individual. Hence, there have been numerous efforts in science to answer these questions and attempts to find a satisfying solution. One of the newest and most interesting attempts of this kind is that of the American Tuttle*), who, with keen insight and expertise, seeks to eliminate objections that could be raised against the assumption of an organic ladder or a gradual progression of living beings through prehistoric times to their current height. The whole matter has been widely misunderstood by scholars and non-scholars alike, construed as if a simple developmental sequence from the lowest to the highest creature, from the monad or sea sponge up to humans, must be demonstrated through all geological eras, following a strict chronological order. Such a perspective, which inherently reveals itself as a quintuple one from the outset, is now confronted not only by numerous diverging facts from the history of the Earth and extinct beings but also by the circumstance that many animals or plants from separate classifications, regarding their greater or lesser perfection, are difficult or even impossible to compare with each other. The organic sequence is not simple but rather intricately branched, composite, often difficult to decipher. As is well known, the separating and distinction-seeking intellect of humans has categorized the currently living animal world into four or five major divisions, namely Radiata or Radiate Animals, Mollusca, Articulata or Jointed Animals, and Vertebrata or Vertebrates, with the latter and uppermost division, that of Vertebrates, encompassing by far the largest, strongest, and most perfect beings in their kind—yet one cannot claim that they are ranked step by step over each other. Instead, each of these major divisions exists more or less independently, and all, as Tuttle aptly expresses it, are like branches of a tree, originating from a common root but then developing independently. Therefore, a fact should not surprise us, which, among the evidence presented against the assumption of a sequence, plays a leading role—the fact, namely, that in the so-called Silurian rock layers, i.e., in the oldest rocks considered by us as truly fossil-bearing, we already find the four mentioned major divisions represented side by side, including notably the highest and most perfect among

them, the Vertebrates, represented by their lowest class, the Fishes. In reality, according to Tuttle, life did not begin where we first find organic remains gathered in greater quantity, but it must have existed in its lowest forms for thousands of eras before it could leave a lasting trace in the rocks. The initial formation is therefore beyond our observation. (It is also likely that, over time, even older fossil-bearing rock layers than the currently known oldest ones will be discovered. The Author.) The Silurian system is preceded by the so-called Cambrian, which, with a thickness of a thousand feet, must have taken millions of years for its development. In its lower layers, no traces of former life are found because only animals with calcium shells could be preserved, and such shells were lacking in the animals living at that time. The later periods of that era, on the other hand, are characterized by the remains of some shells, indicating the progress of naked mollusks towards the acquisition of shell organs. There are also already indistinct traces of plant life, such as seaweed. According to Tuttle, plant and animal life appeared simultaneously. Even in that earliest time, the various main divisions of the animal world may have been represented by creatures of their lowest forms, and then each one may have pursued its own unique path of development from there. Even during the Silurian period following the Cambrian, the major branches of invertebrate animals are only represented by prototypes of their lowest forms, which clearly proves the sequence of stages on one hand but also makes the theory of a single line of ascent and the transformation of one main class into another appear entirely unfounded on the other hand. Mollusks are not the ancestors of fish; instead, all main divisions exist in their lowest and highest forms alongside each other, and each prototype tends not to transform into a higher form but to further develop and perfect itself according to its own disposition. Thus, the so-called cephalopods, a subclass of mollusks, are perfect animals in their own right and stand far above many groups of fish, although the latter are much higher in the general series of animals. In general, complexity of structure cannot yet be regarded as a sign of higher development; on the contrary, complexity often precedes specialization, and animals with the most intricate and artificial compositions are often the lowest. For example, the magnificent crinoid, living during the so-called Permian and Triassic periods, whose shell was composed of more than thirty thousand separate pieces in such a particular manner that it met all the needs of the enclosed animal, has often been cited as evidence of the perfection of prehistoric animals and wrongly used to conclude that the world, instead of progressing, is in a state of stagnation or even regression!

In general, the lowest main division or that of mollusks predominated during the Silurian period, so much so that this era has also been referred to as the realm of mollusks. This was followed, while the layers of old red sandstone were being deposited, by the realm of fish, initially represented by species that, on one side, approached the archetype of fish and, on the other, that of the insects or crustaceans beneath them. Many ages later, these two role models separated into distinct character forms. As the land gradually emerged from the sea during the further course of Earth's formation, the Carboniferous period or the reign of plants arose. With the assistance of high temperatures, humidity, and abundant carbon dioxide in the air, plant growth reached heights never seen before or after. In vast forests, immense coal deposits accumulated, which are of great benefit to humans today. The small and shapeless fish of the Silurian period have evolved into ever higher forms, and the family of the so-called Sauroïds, living at the same time, already appeared as reptiles or amphibians, halfway developed from fish. "While monstrous and insatiable sharks and gigantic Sauroïds," as it is written in the book, "held their prey hunts in the vast ocean, corals and related zoophytes

(plant animals) quietly built at their island homes, century after century, working on the foundations of yet unborn continents. Near the shores already covered by a lush continental flora, seaweeds swayed the slender forms of their leaves, sheltering countless forms of fish and mollusks," etc. In the subsequent Permian and Triassic periods, there was a frequent alternation between land and sea, laying the groundwork for the later dominance of reptilian life. Violent volcanic upheavals altered the Earth's surface, and after a temporary decline in animals and plants during the Permian period, we encounter new and changed life conditions for organic beings. On the surface of the sandstone layers deposited at that time on the beach of the sea, we see the traces of turtles alongside the footprints of giant birds, not capable of flight, but low in their general organization, suitable for both land and water life. Next to them are the peculiar footprints resembling the imprints of a giant hand, belonging to a colossal quadruped, the famous Labyrinthodon—a hybrid between fish, frog, and lizard. The Phytosaurus, with the shape of a lizard, was simultaneously related to birds and mammals, and the Dicynodon even showed kinship with venomous snakes, carnivorous quadrupeds, turtles, and lizards. These reptiles and their counterparts form a peculiar and remarkable group, in which we see a fusion of beings that now stand in wide separation. They provide a faithful guide for that period to trace the development of life, which slowly but visibly, driven by the formation of improving conditions, progressed from the creation of lower to higher forms. This continues through the so-called Jurassic formation into the wondrous age of reptiles, in which the fabulous forms of Plesiosaurs, intermediate between fish, snake, and lizard, and Ichthyosaurs enlivened the foaming waves. The so-called land saurians, heralding the gradual approach of the mammalian type, pursued their prey through the forests, while the Pterodactylus, or flying lizard, equally at home on the waves of the sea as in the air, soared over the ocean with powerful wing beats. The twenty-five-foot-long Iguanodon roamed through dense forests, nibbling on the tender shoots of trees. The following period of the Cretaceous era, like the Permian, was a transitional period, and while the giant reptiles were rushing towards their demise, the living conditions that had sustained them gradually changed to become more suitable for mammals. The significant climate change in the subsequent major period of Tertiary formations was the death blow to the great dinosaur family; it extinguished, and in its place emerged the quadrupeds of this period, the colossal pachyderms, predecessors of the elephant and hippopotamus, remarkable indicators of the emerging existence of higher animal forms. The higher we ascend in the layers of this period, the more the forms of fossil animals approach those that currently exist."

"In Europe, during the later Tertiary formations, the lowlands were inhabited by the hippopotamus, rhinoceros, mastodon, mammoth, various species of elephants, oxen, deer, horses, and antelopes, and in the rivers, the colossal dinotherium, the largest of all land animals that ever inhabited the Earth, was digging. In South America, gigantic sloths lived around this time, and most of the currently known living animals were already represented on Earth by their predecessors. The approximately thousand-year-long Ice Age during the subsequent Diluvial period once again resulted in a long rest day in organic creation, after which the important period of splendor followed. In this period, as the last link in the great evolutionary chain, man, the master of the natural world, stepped onto the stage of existence. The transitional forms and connecting links that we currently miss between the now-living organic beings are thus buried in the rock or extinct, and not in a simple sequence. Like the branches of a tree, the countless generations of organic beings gradually evolved from the same simple beginnings and origins to their present height. All, of course, with the help of

time periods that can only be calculated in many millions of years." Especially within the highest circle of animals, namely the so-called vertebrate circle, the progress and the existence of a law of development are so evident that they cannot be overlooked by anyone. Everywhere within this circle, we can trace the origin of younger forms back to older ones and demonstrate the dominance of "those great principles" that govern nature under the guise of legal order. It is left to the insight of each individual to recognize them. Eloquence is unnecessary where simple facts, on which the theory of natural laws rests, speak for themselves. "In man, the personified perfection of the great archetype of creation is expressed," and the developmental history of his body goes through the main stages of the animal world below him: zoophyte, fish, reptile, mammal. He "passes through the entire vast period that organic life has traversed since its earliest dawn," and "travels through all degrees of animal life from the lowest to the highest." He himself "could have been nothing other than a savage at his first appearance in nature." Even today, "the lowest human races have no other dwelling places than the rocky cliffs and do not even possess the foresight of a squirrel to store food." Only with the help of long periods could he gradually work his way out of this condition, as the most unequivocal geological evidence proves that his actual age far exceeds that of history. "In any case, we must date his first appearance on Earth no less than a hundred thousand years before the historical time of the present." "In comparison with that period, the duration of authentic history shrinks to a moment."

According to Tuttle, this is the nature of the great law of progress and development of life or the organic world, which, if present in this way, provides us with remarkable pointers to understanding the moral order as well. Because the physical world is governed by the same laws as the moral one; here too, gradual development, step-by-step formation, is a fundamental law. Although progress in history may proceed ever so slowly, may alternate with occasional halts and even regressions, and its trace may be difficult to discern under the mass of misery and horror with which humanity has to contend; indeed, entire peoples or races may stagnate, or, after reaching a certain stage of culture, regress and perish; flourishing lands may become desolate, and even among the so-called civilized nations, the spirits of intolerance and regression may seem to win a apparent victory for centuries, in the grand scheme of things, progress, especially in the fields of science and material life, is unmistakable and ultimately victorious. As in the past, so today, the entire existence seems to strive towards a constant refinement of matter, an eternal perfection. What the ultimate goal of this striving will be remains, of course, hidden from our closer insight; we can only say that over the span of time we are able to overlook from infinity, such an ascent from the lower to the higher takes place, perhaps partly prompted by reasons and causes as the insightful Englishman Darwin recently developed in his famous book on the origin of species. Better or stronger must always displace, take the place of, and even though this rule may suffer exceptions in individual cases, in the overall picture, it will always ultimately prove to be correct.

21. The Gorilla

(1861)

For the anthropoid ape species closest to humans known so far, the intrepid Africa traveler du Chaillu explains in his extensive travel work, "Explorations and Adventures in Equatorial Africa," London, 1861, *) the Gorilla, known since 1847 as the "wild man of the forests," as the Africans themselves call him. In any case, he is the largest among all apes we know, as the adult male reaches a height of 5-6 feet and even more—human size; while the female only grows to be 4-5 feet tall. Partly due to this and partly due to its great strength and the fact that it walks more upright and easily than all other apes, this may have given rise to the many myths and stories that the natives tell about him. According to them, he attacks elephants and leopards, killing them with sticks, lurking on trees to pull passersby up to strangle them, abducting and abusing women, building houses, living in herds, tying bundles of sugarcane in fields and carrying them away, etc. etc. The locals also believe that there are Gorillas inhabited by human spirits, as deceased humans have transformed into them. Several tribes therefore refuse to eat its flesh, considering such an offer as an insult, as they, according to du Chaillu, suspect a kinship between the animal and themselves! They also harbor the peculiar superstition that if a pregnant woman or even just her husband sees a Gorilla, whether alive or dead, this must result in the birth of a young Gorilla instead of a human! Hence, such women and their husbands kept a considerable distance from a young living Gorilla that du Chaillu had in a cage, out of fear. The discoverer himself describes the Gorilla, whose personal acquaintance was one of the main purposes of his journey, as a being of extraordinary physical strength and wildness, "half human, half animal," and as the undisputed king of the African forests in his dominion. Its voice is said to have something human-like, and its strength is so great that it can break a rifle between its fearsome jaws or strike a person dead with a single blow of its mighty hand. The first reliable reports about him came in 1847 from the Gabon River in West Africa, where parts of its skeleton were discovered, and where it was known to the locals under the name Engeena. *) According to du Chaillu's information, Dr. Savage and Professor Jeffries Wyman in Boston first introduced the scientific world to the Gorilla in 1847 and provided a description of its skeleton, prompting the renowned naturalists Owen and Geoffroy St. Hilaire to conduct more detailed investigations into the newly discovered animal. Wyman and Savage named it Gorilla—after the ancient Carthaginian Hanno, who is said to have given this name to the wild, hairy people he encountered during his exploration along the African coast. *) The account of Hanno's journey, which may date back to the sixth century BCE, is one of the most remarkable fragments from antiquity that have come down to us, according to du Chaillu. Hanno had been sent by the government of Carthage to circumnavigate the African continent.

**) Despite its high price, this book is said to have sold in England in a short time in an edition of 8000 copies! Its credibility has been strongly contested, however, seemingly in an exaggerated manner and without diminishing the value of du Chaillu's revelations. Even if he may not have penetrated as deeply into Africa as he claims, he spent a considerable time on the equatorial west coast of Africa, hunting in the forests, interacting with the natives, learning their language, and having reliable informants for what he did not witness himself. His accounts are reported to align with those recently made by the French traveler de Braouzec about the same region. Furthermore, Murchison, one of England's foremost scholars, Director-General and Vice President of the Royal Geographical Society in London, expresses himself on this point in his address at the Anniversary Meeting of this society on March 27, 1861, on page 215 as follows: "But despite these errors, no one reading du Chaillu's book can doubt that he hunted and killed the Gorilla in the rocky woodlands of the interior, lived among cannibals, and described the physical features and vegetation of areas never before visited by a European. The truth of his narrative is indeed confirmed by the printed reports of the eminent ornithologist Mr. Cassin, in the reports of the Academy of Sciences in Philadelphia, at whose request he undertook his second and longest expedition three years and eight months ago, and also by references to the missionaries from whose residences he made his excursions." This is followed by gratitude for du Chaillu and a note stating, "While these lines pass through the press, an unexpected and unsolicited testimony to the truth of du Chaillu's narrative has been given by Mr. P.*

*Lund Simmonds, in two letters from his brother-in-law, the missionary Walker, who wrote in 1858 and 1859 from the Gabon region and was acquainted with the discoveries of our traveler, of whose deeds and character he speaks in terms of the highest respect." (See regarding Mr. Walker's letters to Mr. Simmonds, the "Critic," weekly journal, July 6, 1861, p. 17). Similarly, like Murchison, the French scholar Malte-Brun expresses himself in his report on the works of the Geographical Society and the progress of geographical sciences in 1861. (See Bulletin de la société de géographie, Paris 1861, No. 11 and 12). -- On June 7, 1862, the Cologne Gazette also reports that a certain Walker has recently brought several Gorilla remains to London, as well as a complete specimen of a young Gorilla, captured alive but died on the way. Among those remains is the head of an adult Gorilla, measuring 14 inches from chin to neck. The whole is intended for the British Museum.· A more recent report from the same newspaper (No. 177 of the year 1862) states that a letter from the geographer Petermann in Gotha was read at the London Geographical Society, in which this famous authority declares that du Chaillu has rendered great services to geographical science, as much as anyone in this century *) Engcena, Ingena, Ngena, Ngina, Gina, D'Jina — all names by which the Gorilla has been alternately referred to by different travelers, according to du Chaillu, are variations of the Mpongwe name, which is Ngena.*

Textbooks list it as Troglodytes gorilla or Gorilla gina.

He sailed with sixty ships and arrived on the third day at an island inhabited by wild people, whom the interpreters called Gorillas. Three females were captured, killed, and their skins hung in the Temple of Juno in Carthage, where, according to Pliny, two of them were still found at the time of the Romans' capture of Carthage. However, du Chaillu is inclined to believe, for various reasons, that it was not the Gorilla but the Chimpanzee encountered and captured by Hanno, so the honor of the first discovery of this remarkable animal would still belong to modern times. In 1819, Bowditch provided the first reliable account of the Gorilla based on hearsay, and the American missionary Wilson was the first to provide the scientific world with actual evidence of the existence of this remarkable animal. However, no traveler except du Chaillu has tracked the animal to its caves in the unknown regions of the interior and had the opportunity to correct the myths circulating among the natives about it from personal observation. According to his claim, he is the first white person who can speak about the Gorilla from personal acquaintance, and his reports are not based on hearsay or information obtained from superstitious natives. According to him, it is not true but a myth that the Gorilla lives in herds, lurks in trees, abducts women, etc. On the contrary, it prefers to stay in pairs in the deepest jungle and the remote seclusion of wooded valleys, although it wanders around a lot and solely lives on plant nutrition. Moreover, it is always found on flat ground, not in trees. Only the young ones sleep on trees to escape from wild animals, while the adults rest on the ground, leaning against rocks or trees. The hands and feet of the Gorilla are not as adapted for climbing as those of the Chimpanzee, resembling more the human form, especially with a foot that is said to be better suited for walking than any other ape. However, walking upright is still challenging due to the mismatch of legs and body. Typically, it runs on all fours, but even in this position, the upper body is so elevated due to the length of its arms that the running juveniles, with their semi-upright bodies, appeared somewhat similar to fleeing Africans from a distance. The feet move between the slightly outward-bent arms. When attacked, the adult male Gorilla stands upright on its hind legs, walking with balanced arms and presenting a terrifying sight as it charges the hunter, while the smaller and weaker female attempts to escape with the young one. Both emit a peculiar cry in the face of approaching danger, and if the mother wants to call her child, she does so with a deep, clucking sound. The male, on the other hand, raises his voice to a dreadful roar, shaking the forests and frightening even the bravest. Periodically, he vigorously beats his immense chest with fists, producing a dull, widely audible sound. His forward movement occurs step by step. This gives the hunter time to let his foe come as close as possible before sending a secure bullet towards him. If he misses, it could likely mean the end of his life. Fortunately, if well-hit, the Gorilla dies easily and, in this regard, resembles humans more than animals. Its death cry should have something human about it, as does its entire appearance; the hunt itself takes on a repulsive character because of this. "He falls," as du

Chaillu narrates on page 352 of his book, "forward onto his face, his long muscular arms outspread, and with his last breath emits a terrible death cry, half roar, half scream, which, while announcing safety to the hunter, still fills his ears with a terrifying reminder of human death struggle. Indeed, it is this hidden reminder of humanity that forms one of the principal incentives for the excitement of the hunter in the attack on the gorilla." The same feeling struck the hunter even more strongly on another occasion (p. 434 and 35): "There is enough human likeness in this animal to make the sight of a killed one gruesome, even for eyes accustomed to such things, like mine were at that time. I never felt that half indifference or triumphal feeling that seizes the hunter when a good shot has brought him the head of his chosen game. It was as if I had killed a misshapen creature that still had something of humanity in it. Even when I knew this was a mistake, I couldn't rid myself of the feeling." Our author recounts the following about the female gorilla: "It is a beautiful thing to observe such a mother with her playful young around her. I have stalked them in the forests and, as eager as I was to obtain specimens, I did not have the heart to shoot. But in such cases, my native hunters showed no sentimentality; they killed their prey without delay." Du Chaillu describes several gorilla hunts, all of which proceeded more or less in the same manner, and one of them is narrated on page 304 as follows: "There were two gorillas, a male and a female. Thanks to a jungle where they were hidden, they spotted us first. The female uttered an alarm call and ran away before we could fire a shot to hide in the thicket from our gaze. The male, however, did not think of fleeing. It slowly rose from its lair and looked at us, emitting a roar of rage against our seemingly untimely intrusion. In the dim half-light of the ravine, its dark, deceptive eyes, its malicious gaze, its satyr-like, wrathful features presented such a frightening sight that one might have thought they were facing a spirit risen from hell. It approached us, as is their habit, in fits and starts, beating its chest with its fists, and filled the forest with a roar whose echo resembled the loud rumble of thunder." Recently, it stood about six yards away from us and began to roar and beat its chest again. Just as it took another step forward, we fired, and with a groan, it fell dead at our feet, on its face—its height was five feet nine inches, its outstretched arms measured nine feet, its chest had a circumference of 62 inches, and the big toe had a circumference of 6 inches. Its claw-like hands, capable of tearing open a man's intestines or breaking his arms with a single blow, were true pincers, and I could see how devastating a blow from such a hand, propelled by such an arm, could be. Shortly before, during another gorilla hunt, the animal had struck down and fatally wounded one of Du Chaillu's native companions, who had ventured alone and only managed to wound the gorilla, but the rifle was broken and shattered. Du Chaillu also succeeded twice in capturing young gorillas alive, providing a detailed description. Unfortunately, they could not be kept alive, one due to uncontrollable wildness, the other because it was too young and deprived of milk. The latter had been taken from the chest of a killed mother and brought to the village separated from her. When the young one saw the body of its mother again, "it crawled to her and threw itself at her chest. Here, it did not find its usual nourishment, and I saw that it noticed something had happened to the old one. It crawled over her body, sniffed it, and occasionally emitted a plaintive cry, 'Hoo, hoo, hoo,' which touched my heart." The skin color of the gorilla is black, and the color of its hair is iron-gray. In old age, the entire body appears gray. It lacks a neck, and the head is almost directly on the powerful shoulders. The jaws are exceptionally strong, the arms are highly developed, reaching down to the knees, and the legs are short. In its physical organization, the gorilla presents several anatomical peculiarities that are very similar to humans

(especially in the number of wrist bones and the formation of the thumb); however, there are also many other features that make it more animal-like than other apes, such as the chimpanzee. Especially in terms of skull formation, it is inferior to the latter. Therefore, Vicle places it a step lower in terms of human resemblance than the chimpanzee, while Owen and Du Chaillu, considering everything, assign the gorilla the closest place to humans. Of course, the gap between the two is still significant, as demonstrated by comparative measurements of skull capacity conducted by Professor Wymann in Boston and others, and tabulated by Du Chaillu. If the highest measurement found for any ape (gorilla) is 35 cubic inches, it still remains 28 cubic inches behind the lowest measurement found in humans (Hottentot and Australian) of 63 cubic inches! The average measure of this capacity varies among different apes from the genus of chimpanzees, ranging from 21 to 26 cubic inches, in the gorilla (taking its significantly larger body size into account) from 26 to 29, while in the Negro and Australian, it is already 75 cubic inches! The skull capacity of Caucasians averages between 92 and 114 cubic inches. In youth, all ape skulls are more similar to each other and to the human skull, aligning with the well-known experience that chimpanzees and orangutans resemble humans more in facial and head formation in their youth than in old age. A still greater resemblance to humans than chimpanzees, gorillas, or orangutans is said to be exhibited, in terms of general appearance, by another type of monkey from western Africa, the Kooloo-Kamba, also discovered by du Chaillu. His round head, with a skull capacity relatively larger than that of the gorilla, most closely approaches that of humans. His smooth face with a high forehead and large eyes is said to resemble the expression of an Eskimo or Chinese. He sports a beard around the chin and cheeks and has a very human-like ear. However, in other aspects, he falls behind the gorilla. His discoverer is inclined to consider him merely a variety of the chimpanzee. Incidentally, according to du Chaillu's assurance, he unsuccessfully searched during his journey for a link or intermediate form between humans and gorillas—which, as he believes, should exist, "if man had come from ape!" A third very remarkable type of monkey discovered by du Chaillu in western Africa, named Troglodytes calvus, is the Nschiego-Mbouvé or nest-building monkey. It constructs a nest or roof between the trees, 15-20 feet above the ground, providing complete protection from rain—so skillfully and well-made that du Chaillu found it hard to believe that human hands did not form it. Both the male and female work on it collectively, with the male building and the female passing up the material. After du Chaillu had killed a mother of this monkey species, her young, which strangely had a white face, caressed the corpse as if trying to bring it back to life. Then it seemed to lose all hope. Its little eyes became very sad, and with a hopeless look, it broke into a long, touching lament (Doee, Doee). The discoverer raised the young one, which became tame and docile but showed a strong inclination towards stealing.

The monkey gradually discovered that the best time to steal was in the morning when its owner was asleep. It would then go to the bed and observe the sleeping face. If it found the eyes closed and features motionless, it would steal the bananas. On the other hand, it seemed innocent and affectionate towards its owner. It never missed breakfast and lunch, the latter of which it would carefully inspect from a roof beam of the hut before coming down to sit beside its owner. If it received something it did not want, it would angrily throw it to the ground, like a naughty child. It loved coffee but would not drink it without sugar. It was given a sleeping cushion, the use of which it soon greatly appreciated and always carried around. If it ever lost it, it would make a great fuss. As it got colder, it refused to sleep alone, but no one wanted to take it in. So, it waited until everyone was asleep and then crawled into the nearest

proximity of one of the Africans, attempting to sneak away unnoticed in the early morning. It had a great fondness for alcoholic beverages and once got completely drunk, presenting an image of a drunken man. With the locals, it sat around the bowl and reached into it when they did; likewise, it joined them at the fire. Its intelligent eye took on an expression of sadness when left alone. Gradually, it gained a formal reputation in the area, and concurrently, as it aged, its initially bright face consistently darkened. One morning, it was found dead without a specific cause.

22. Materialism and Spiritualism.

(1862)

The debate on materialism and spiritualism, although the initial clamor has subsided and fervent enthusiasm has cooled, seems in reality to be more inclined to deepen and expand rather than diminish. The book listed below, written with composure, expertise, and clear understanding, is likely destined to occupy a prominent place in this debate. It gains particular interest by the fact that the author is a follower of Schopenhauer's philosophy and seeks to establish his judgment based on Schopenhauer's and Kant's norms. As such, he deems it necessary to precede his discussion, for which he chooses the fitting motto "Simplex veri sigillum," with an exposition of his theory of knowledge according to Kant-Schopenhauer. According to this theory, the common view that things exist in a perfected state outside and only need to be perceived by the senses to be recognized is fundamentally false. What is correct is that things become what they present themselves to be in appearance only when they are represented. This may seem paradoxical but is nonetheless true. The properties do not inhere in the things themselves but arise in the sensory and central organs of the representing subjects.

**) Dr. A. Mayer: Toward Understanding Materialism and Spiritualism. Gießen, 1861.*

From sensation, one rises to the concept, which has much more content than the former. Kant has found that all concepts have some determinations or forms in common, without which they would be impossible and which lie a priori or as preceding experience in the mind. Among these are primarily the concepts of space and time, which is why there is such apodictic certainty in sciences based on space and time, such as geometry and arithmetic, as is never attainable in empirical sciences. The apriority of these thought forms is denied by many philosophizing empiricists, such as Krause, Wundt, who even seeks to prove that spatial perception arises empirically, Moleschott. As much as the concepts of space and time, the ability of the human mind to seek a cause for every change or the so-called causal principle is innate and must be pre-formed in the cognitive organs of humans, which entitles them to the question "Why?". In connection with this, the author further explains his stance against the freedom of the will. According to him, Schopenhauer has best demonstrated the opposite of the commonly held views on this matter. With a sufficient cause, i.e., sufficient motives, the resulting effect is necessary. However, the conflict between individual motives is often so intense that there is no direct relationship between motive and action. The author also posits a kind of life force or qualitas occulta, akin to unknown properties assumed in inorganic processes. According to him, we do not know the indestructibility of matter through experience but are aware of it through an innate thought form!

Regarding things beyond constituting our perception, we do not know and it does not concern us. The unraveling of the "thing in itself" is left to philosophers. Things may still have unknown properties, but we cannot recognize them as our organs are lacking. In the organs of perception, an object only becomes what it is mistakenly assumed to be independently of the organs. Thus, binocular vision relies on innate, organization-based predispositions; it is a cerebral or mental process. The ability for this is partly inherent in the brain and partly in the sensory tools. Therefore, it firmly stands, "No object without subject!" According to Schopenhauer, "the world is my representation." Yet, things are neither illusion nor deception but become truly real through representation. The intellect is to be defined as intuitive

knowledge; only it provides complete certainty of the known. Assertions not based on observation or perception are groundless. Philosophers from the Hegelian era worked with such assertions, rendering their philosophies meaningless. Only through intuitive knowledge can we learn something, expand the circle of our knowledge; intuitive representations are the foundation of all knowledge. However, this is not enough to define the essence of humanity, as animals also possess all this; humans additionally have reason or the ability to form concepts — an ability that distinguishes them from animals. Without reason, there would be no science, no history, no maxims, no state! Through reason, the commonality of a series of intuitive representations is grasped, held, and reproduced by memory. This is called judging, something animals cannot do. The more general and extensive the concepts, the more they lose content and meaning. Abstract representations, concepts, are not to be visualized as such, e.g., the concepts of education, illness, etc. The intellectual faculty, where there is truly only a gradual difference between humans and animals, is solely reason. On the other hand, as already noted, animals do not have reason, i.e., they cannot form concepts or generalize. Apparently rational actions are conditioned by instinct, such as animal constructions, spider webs, and the like. However, with the ability to form concepts, the danger of error begins for humans, causing immeasurable suffering to individuals and nations. Nonetheless, concepts or abstract representations are always dependent on and conditioned by the intuitive. Animals only live in the present, whereas humans also live in the future.

After this introductory exposition of his adopted theory of knowledge, the author turns to the treatment of his actual topic, the contentious issue of materialism and spiritualism. He initially distinguishes materialism as a worldview from epistemological materialism, to which he adheres and deems the only significant one. It does not, as wrongly assumed, form an opposition to idealism but only to spiritualism. On the other hand, the term realism denotes the actual opposition to idealism, while a materialistic theory of knowledge can be both idealistic and realistic. The question around which everything revolves, according to him, is: Can mental activities be considered as functions of the senses and the nervous system, or must an unknown, immaterial entity be assumed as their basis? Everything that can be brought forth as facts speaks, according to him, for the former and against the latter view. Although the size of the brain alone cannot serve as a measure of intellectual capacity, and brain size and intelligence are not directly proportional in humans and animals, this is partly explained by the fact that the brain is not only a central organ for mental activities but also for movement. The gray matter of the large hemispheres is considered the actual carrier of mental function, and in this aspect, the human brain surpasses all others both relatively and absolutely. It is likely that the small brain also plays a certain role in mental activities. Nonetheless, there is a definite parallelism between brain organization and mental life, and apparent gaps, exceptions, etc., likely result from the imperfection of our knowledge, particularly in the finer or microscopic anatomy of the brain in both healthy and pathological states. Hence, it is considered established that mental activity depends on its organ, the brain, and the assumption of an immaterial entity is contrary to the facts. All mental activities, whatever they may consist of and however they may be, can only be performances of specific organic arrangements, while there is no evidence for the existence of an immaterial being that has only settled in the brain and, by its own power, stimulates the organs to activity—no shadow of proof can be provided. Some facts from pathology or the study of diseases, which have been attempted to be argued in favor of an opposing view, undergo an entirely different interpretation. Specifically, mental disorders arise from nothing other than the effect of

altered nutrition of individual parts of the brain; the brain cells are altered in such a way that their normal activity is impaired or reversed. In particular, the fact that mental disorders often occur after emotional movements decidedly does not support spiritualism; the causal connection finds sufficient explanation in the disturbed blood circulation and altered nutrition of the brain. The often sought-after and recently emphasized sensorium commune or a common center inside the brain for the occurrence of all sensations does not exist; similarly, there is no such center for the impulses of the will. One must distinguish, however, between volition and free will. Phrenology and cranioscopy are nonsense. With all of this, the second part of the question posed above answers itself, as it were. The existence of a separate immaterial entity or soul, a soul ether, a soul substance that is supposed to be spaceless, bodiless, simple, thinking, and immortal, is absurd. Even if millennia have believed in the existence of such a being, thousands of years of error can never become truth. Consequently, there can be no other continuation after death than in the substances from which we are composed. In a special section or appendix, "Supplement to the Evidence," the author provides a critique or correction of opposing opinions from some notable writers, such as Volkmann, Loze (who seeks to satisfy both faith and knowledge, religion and science without grounds and arbitrarily separates consciousness from sensation and representation), Beneke, who believes in the existence of an immaterial soul without being able to say the least about its nature, and others who follow diametrically opposite statements. R. Wagner, who somewhat brought about the entire dispute, R. Virchow, who—at least in some of his expressions—also seeks to maintain a semi-spiritualistic standpoint and argues for the unity of consciousness, while the author firmly asserts that consciousness, like cognition, is tied to various brain regions, and thus the postulate of a unified substrate for consciousness is invalidated. Finally, Professor I. G. Fichte in Tübingen, who, from philosophical standpoints, falls into much grosser errors than the mentioned physiologists and operates on entirely transcendent and metaphysical standpoints, although strangely claiming to only start from experience. When the author says of Fichte that he continuously operates in a "spiritualistic transcendent dogmatism," that the measure of the true and right seems entirely lacking to him, and that with him a completely "arbitrarily empty speculation" and "fantasy creations mocking all facts" connect with "unexplainable arrogance," he will undoubtedly not deny the one who has read Fichte without prejudice full agreement. Even Loze sees only "dreary embellishments" in Fichte's assertions. Finally, the author summarizes the sum of his views in the way that theology and natural science cannot peacefully coexist. Those who cannot be content with the naked truth may adhere to faith; for scientific investigations, however, truth must be the only valid guiding principle. The truth is not barren or dreary; because in the nature of true knowledge, it lies that what it seems to destroy or steal on one side is more than compensated for on the other side. Countless examples could be cited for this. In this case, too, egoistic motives will be replaced by others arising from truth and increased compassion; comfort and reassurance will be found in the righteous cause itself.

The true works of religion, such as justice and neighbourly love, will, instead of restriction, experience encouragement, and that from a much purer, loftier motive than that arising from literal faith. Regarding criminal justice, the entire doctrine is completely indifferent; it only demands that punishment acts as a remedy, not as poison, that it improves rather than further incites and enrages society. Therefore, instead of abolishing criminal justice, materialism, according to the author's view, establishes it more rationally, hence more robust and in accordance with nature. Any disadvantages attributed to it do not affect materialism itself but

only a misguided interpretation of it. Similarly, the alleged frivolity of materialism is nothing but fiction. In all things, there may indeed remain something inaccessible to sensory knowledge, but we know nothing of it and can know nothing of it; hence, it remains beyond our consideration. Materialism cannot construct the "thing-in-itself." Therefore, refrain from condemning a doctrine that, according to the author, replaces a brittle staff with a solid pillar, and do not accuse it of undermining social order when it contributes to its firmer foundation. Also, do not accuse this doctrine of encouraging sensual pleasures, as it most emphatically warns against them!

For those who wish to understand the more precise logical foundation of all these statements, they may refer to the book itself. The clear and simple style, devoid of any verbosity, will greatly facilitate reading and not fail to leave a beneficial impression of the author's firm and masculine conviction expressed in the book. Whether everything asserted here with great certainty as the only correct thing should be accepted as such is another question that could be extensively discussed. The author stands too firmly on a standpoint mixed with natural scientific empiricism and philosophical theory to be considered an impartial judge seeking only the truth. The apriority of the forms of knowledge that he assumes would require different proofs than those presented to be accepted as the foundation for the entire argumentation. On the contrary, a sound and consistent natural philosophy is unlikely to ever reconcile itself with such an assumption, aside from the fact that it presents insurmountable difficulties to the application of the causal law emphasized by the author himself. Additionally, his view on the relationship between brain and soul is strictly materialistic but not inherently provable, while his opinion, formed after Schopenhauer, on the difference between human and animal souls does not align with it at all. Despite Schopenhauer's genius and merits, in our opinion, he cannot serve as a guide for a nature conception proceeding along correct paths, and leadership itself raises suspicions. The author should, in the future, let his clear understanding guide him alone rather than relying on one from the great school of philosophers. Despite these reservations, the book provides essential contributions to the clarification and proper understanding of the challenging issues ventilated here, and its reading could be of great benefit to anyone wishing to navigate these questions accurately.

23. Eternity and Evolution

(A. Bühler. Theokrisis: Ideas about God and the World for the Reconciliation of Theism and Pantheism. Berlin, 1861)

(1862)

Once again, one of those countless yet always unsuccessful attempts to demonstrate the Absolute, the Unprovable! If the present attempt, like most before it, were made solely on a theoretical philosophical path, it would hardly be worth closer attention and discussion. However, the author makes an exception in that, at least in the beginning of his exposition, he seeks to move as much as possible on real ground and constructs his arguments from there, as well as from perspectives of modern natural observation. Specifically, it is the mutual relationship between eternity and development in nature that serves as the starting point for his investigations, leading him, in his opinion, necessarily to the assumption of an "Absolute." Initially, according to him, it is an "established fact" that "the entire universe is a vast interconnected whole, which over thousands of years, through forces inherent within it, transitioned from an undeveloped state to a more developed, thus more perfect state and will likely continue towards further stages of development." The entire universe is organically connected, and according to analogy, it is presumed that similar conditions prevail on other celestial bodies as on ours. "The entire universe in all its parts, from those gigantic luminous spheres to the dewdrop that glistens on a blade of grass, is a single, vast, animated and intimately connected whole," in constant development. The various stages of development are functions of the terrestrial whole, linked together by a continuous chain of cause and effect. Even the Earth, in its infancy when the interaction of force and matter was much simpler, cruder, and less complicated than today, is an organism in continuous development. As evidence of this assertion, the author provides a brief outline of the Earth's history, in which the simple precedes the complex, the imperfect precedes the perfect, and the general precedes the multitude of the particular. Thus, the temporality of the world or the development of the world embryo in time is initially proven. However, one might object, all of this might be just a single phase in the eternal cycle of the universe! The world embryo blossoms like a plant from the seed and dies only to leave behind a seed again, and so on. Therefore, the entire development in which we currently find ourselves must be regarded as just a single period, an epoch of the overall cycle.

The author seeks to refute this opinion as inadmissible by demonstrating the unquestionable infinity of the world. The cessation and regression of the developed into its earlier elemental states are impossible, and the origin of the world must be thought of as arising from a world germ or a boundless and formless chaos, from which everything has emerged. However, this raises the further question: where does this world germ come from? There was a time when nothing of what exists now was present, including matter. This, incidentally, is meant to serve as a refutation of materialism. Even matter is temporal, for it cannot be eternal due to the development, which would also have to be eternal, as an indifferent state of matter atoms towards each other is inconceivable. To come to the solution of the mystery of the origin of the world, there remains nothing but to trace the known backward as far as possible. If one does this, it leads to a point where initially only a shapeless and endless space or extension existed. However, since this extension is fundamentally not a thing but only a property, the question arises: what is the thing of this property? For the reasons already mentioned, it cannot be matter. It must have been space before matter existed, but this space cannot have been empty or unlimited either. In other words, the extension cannot be the property of

nothing. Therefore, necessarily another unknown quantity must exist, which is neither nothing nor something that has become, and to which the property of infinite extension belongs. Just as space is inconceivable without a substrate, so is time, which represents eternal duration, the infinite that forever and ever secures the existence of space and its substrate. Time is not what becomes, but we, the finite beings; it is a constantly and infinitely extended unity. Therefore, time also points to a magnitude or substrate that exists outside finite being and is different from it, and whose property it is. This substrate is not something becoming but something existing, without beginning or end, embracing eternity as its constant presence, inherently real. The condition of cosmic being must be sought in these two substrates, and these two quantities presupposed by time and space in reality cannot represent two different but only a single quantity, which is temporally and spatially unconditional or eternal and infinite. Since being is nothing other than a constant becoming, the existence of things must also have a cause, just as their origin does. This becoming therefore immediately and necessarily presupposes a constantly active cause. This cause conditions the beginning, existence, becoming, etc., of finite being, exists now, is always existing, etc., and all conditions of finite being exclusively rest in it, while it itself is without cause.

According to the author, atheism is thus eliminated, and the idea of the Absolute is removed from the category of mere assumptions!! With the help of this gained knowledge, not only should atheism be eliminated, but also the other two philosophical worldviews of theism and pantheism should be overcome in a higher idea, which is further explained or attempted to be explained in detail. The Absolute appears as a self-aware, unrestricted, self-determining, and self-acting thinking and rational-willing power, whose constant activity is synonymous with the existence of cosmic being, and whose consciousness encompasses eternity as its presence—a "pre-eminent consciousness," as the author adds, somewhat amazed at himself. Spirit and matter, force and substance, which cannot be separated but are identical and therefore only bring forth life everywhere in nature but tolerate nowhere rest, death, or destruction, are present in unity in that power or in God (which is synonymous with that concept); God is, in one word, the living substance. This resolves the dilemma between the ideal and the real, while our soul remains spirit, God remains God. Also, according to the author, matter is by no means something opposed to the divine nature and therefore to be despised. In this sense, creation itself is conceived as a constant and incessant activity of the Absolute in ever higher stages of development, as the free creation of the Absolute from itself. In this view, the latter is also the identity of spiritual and material being; its activity is both ideal and real. Creation is not the perfected thought but the thinking of God itself, the development of a divine idea, the active self-recognition of the immeasurable in the measured, the eternal in the temporal, the being in the becoming, the one in the manifold, the perfect in all stages of perfection. Eternity is for God only a single immeasurable presence, and only we finite and becoming beings perceive everything in space and time. It is one living God, and the infinite world is his real thought!

In this manner, as the author believes, the old dilemma between Theism and Pantheism is overcome. The entire immense world idea is God's conception of Himself; for God's thought or activity is self-awareness. In this context, the present world is the real, to a certain extent developed world, while the world in its potential or embryonic state is the undeveloped but capable conception of God about Himself. However, this would imply that divinity is a

capable and therefore temporal being. Since this cannot be the case, the reality is that the world's potential or the general conception of God about Himself is, as it were, fertilized by the idea of entirety, making it capable of development. The idea of entirety is thus the principle of world development, and without that fertilization, cosmic existence would be absolute stillness, absolute indeterminacy, or God's self-awareness in the entirety of His determinations. The evolving conception itself is the world, and it is the free creative act of the Eternal. Without the world, God would indeed exist, but as an unconscious God; nevertheless, God does not only become conscious at the existence of the world. God's thought is both creation and self-awareness, and therefore God and the world are one. The ongoing development therein is a continuous process of perfection or the real development of the idea of God, and so on and so forth. Our own thinking, finally, is an image of divine thought and continues after death. Animals do not yet have a fully self-contained content and, in death, return to the general, whereas humans, as the highest stage of development, as a fully expressed individuality in form and content, as a person, stand before God and their brethren.

We are "thoughts of God" or the "You" of God. Our purpose is to become the "blessed mirror of His blessedness," this self-contained "You of God" there beyond those stars, where "Love holds its word."

Essentially, this is the train of thought of the author of "Theokrisis," in pursuing which one particular thing must greatly disturb the pursuer: "One senses the intention, and one becomes disheartened." Indeed, the author, at the beginning of his investigation, presents himself as someone who honestly seeks the truth and is naturally led to the goal. However, as the inquiry progresses, the logical leaps, by means of which the previously known goal is to be achieved at any cost, become quite severe. It is finally conquered at a brisk pace, only to burst like a shimmering soap bubble in the hands of the conqueror! Questions such as how boundlessness is compatible with temporality, how substance can arise from nothing, why divine thought takes so long, and how the perfect can find a reason to recognize and rediscover itself in the imperfect, the eternal in the temporal, the existing in the becoming, etc., are left unexplored by the author along the way, as he evidently had no time to ponder them; otherwise, he would likely have left his book unwritten. The "Idea of the All," which is supposed to stimulate the world's potential for development through its fertilization, is essentially nothing more than an idea of the author of Theokrisis. Even if it were genuine, one would still futilely ask why something perfect, eternal, and absolute, which doesn't even come to consciousness in the world, needs to develop further. Eternity and development are indeed challenging concepts to reconcile unless one considers development as an individual phase of an eternal cycle. However, all such questions go as far beyond our means of knowledge as the knowledge of the Absolute itself, which the author describes so thoroughly. Does he not see that all the categories by which he measures and judges the essence of the Absolute are abstracted from his own human nature, leading him to the most palpable anthropomorphisms? It is indeed difficult to comprehend how, philosophically, one can repeatedly fall into the error of transferring experiences made about being, thinking, etc., in one's own human self to a so-called Absolute and cobbling together an empty thought-thing without any real basis through a comparison of the two! Ultimately, this thought-thing never roots in knowledge but always only in belief, which certainly does not require such theokritic proofs to exist. Therefore, when it is said that our thinking is an image of divine thinking, in reality, it is the reverse, and if the atheist thinks, "There is no God," this thought cannot possibly be an image of divine thinking in the author's sense. Finally, how we can become the

"You of God" and the "blessed mirror of His blessedness" after death, while standing as a separate person before God — that question should not be scrutinized further but covered with the mantle of Christian love considering the subject. In the end, one cannot deny faith the right to substitute for the deficiencies of our knowledge and as a general tentative explanation for everything that is inexplicable or seems inexplicable, a hypothetical concept that requires no further explanation and then further imagine this concept in the form of a person, making it the judge of all destinies, to be worshipped, etc., etc. However, in that case, it can only claim to be faith, while science knows no other task than to seek reasons for the phenomena or effects surrounding us that lie within the realm of our knowledge and, where it cannot, to temporarily accept its imperfection or inadequacy. Any other method inevitably leads and must lead to completely unscientific and erroneous results, as the history of the human mind has clearly demonstrated. "Science," says Apelt (Theory of Induction, 1854), "would not only gain nothing but become a prey to the principle of 'lazy reason' if one, instead of seeking laws, only wanted to rely on the unfathomable deliberations of the deity." Ideas of the Absolute have absolutely nothing to share with scientific knowledge; instead, they oppose the scientifically knowable essence of things as the finite to the infinite. They are the principles of faith but have no use in science whatsoever.

Therefore, may Mr. Bühler henceforth direct his efforts towards other tasks; for few will believe, as he thinks, that he will succeed in reconciling atheism, theism, and pantheism in this way, as the goal he seeks is generally considered unattainable. If there is no divine entity, his endeavor is futile from the outset. However, if there is a divine entity, it must be unknowable to us through knowledge; for if it were knowable to us, then it would cease to be divine!

24. Philosophy and Experience

(1862)

"To say that necessary truths cannot be obtained through experience is to deny the clearest testimony of our senses and our reason."

Jobert: New system of philosophy.

"It was the fate of philosophy itself, as represented by Schelling: admired like a prophet, satisfied and used like an obedient servant, pursued and feared like a harmful instrument, ultimately laughed at and set aside like a senseless dreamer. It has come to the point where ignorance and self-proclaimed science have declared against it, where the Church, which served it in the Middle Ages, the state, which still served it in this century, and scientific progress, which always welcomed it as a support, have become its unnatural allies against their common enemy. It is worth the effort to investigate whether it is philosophy itself or, as seems more likely to us, only a misguided direction of it that has incurred this aversion."

For the purpose of this investigation, the author of the cited writing and the quoted sentences from it asserts that, in the struggle against the imperfect, contradictory, and insufficient aspects of knowledge based solely on external perception, every effort has been made to understand or of mere empiricism, at first, all philosophy has emerged, as its aspiration is to create a coherent knowledge that harmonizes with the laws of thinking. It therefore places an inner source against the external source of knowledge, pure thinking against experience, and pure, intellectual, transcendent absoluteness against sensory perception. From this arises two worlds: one of empirical facts remaining in mere actuality and the other of philosophical, systematically organized knowledge striving for inner wholeness. However, this pure thinking can be of two natures, either reflecting (processing, according to the author) externally observed things or experiential material according to thinking principles, or looking at itself, replacing experience and spinning from itself like a silkworm. From the former, a science of perception develops, and from the latter, a philosophy of perception. Between them is the philosophy of experience that follows and reflects on experience.

**) Philosophy and Experience. An inaugural lecture by Dr. Robert Zimmerman, Professor of Philosophy. Vienna, 1861.*

Between these opposites of the philosophies of perception and experience (the former claiming to have already overcome all possible experience through its pure thinking, and the latter attempting to correct imperfect experience through thinking), philosophy has moved since its origin and will continue to move as long as the intellectual essence of humans and their capacity for knowledge remain the same. Plato compares the soul to a team of horses, one white and striving toward the sky, the other black and pulling downward to the earth, which can be related to the feeling of limitation in humans alongside their insatiable drive toward the infinite; "where ability does not reach, the eager pleasure on winged chariot precedes it." Antiquity already knew (felt, according to the author) this contrast and characterized its sides through Plato's Idealism and Aristotle's philosophy of the intellect. In Neoplatonism, the consequence of the former was already evident when its followers believed in the possibility of an immediate temporary union of the chosen with the divine primordial being. Theosophists and mystics of the Middle Ages aligned with the Neoplatonic philosophy of perception, while the true Scholastics leaned more toward Plato and away from Aristotle. Bacon, although related to him, opposed him; Descartes and Spinoza thought more platonically again. Locke's keen criticism made the innate ideas of Descartes diminish, while Leibniz, standing on the shoulders of his predecessors, sought a reconciliation between the

two parties. He neither considered the idea to be innate nor the soul to be a tabula rasa and paved the way (according to Zimmermann) — admittedly in contradiction to his own system — for a direction that was destined to lead to a philosophy reconciling experience and thought. Kant took up the thread that Leibniz had dropped, albeit in a peculiar way. He starts from external experience but seeks to impart to it, in terms of form, the properties of knowledge through pure thinking. This way, the appearance in the subject only takes on the shape that the nature of its cognitive capacity necessitates. While realistic in substance, experience is idealistic in its forms, primarily involving space and time. Thus, a fateful Rubicon was once again crossed, allowing not only sensory but also pure perception and laying the foundation for the idealistic continuation of Kantian philosophy by Fichte, who, in Kant's opinion, pointed out an inconsistency and now made the subject's experience not only in form but also in substance its own product. With this, the victory of pure philosophy of perception seemed immediately decided. The role of the receptive sense was taken over by the productive imagination, and the place of the given was taken by the (self-)formed experience. But who guaranteed that the experience formed in this way was not merely imaginary? Even Fichte himself (felt and) admitted that the production of the imagination was confined within incomprehensible (!) limits and thereby revealed the need for a material basis. To satisfy this need, Fichte's idealism constructed a standpoint of the subject where finite and infinite intelligence, ego and non-ego, objective and subjective coincide as one, and from which the formed experience must be identical to reality. This standpoint cannot indeed be demonstrated; it can only be soared to or phenomenologically ascended through the gradual elevation of consciousness.

"From the wood of the pure forms of intuition of Kant's transcendental aesthetics, the chariot was crafted, on which the new Phaëtons ascended to the sun's height. Once one had reached there with intellectual eyes to behold what no empirical psychologist could discover in the soul, there was indeed no limit to the field of view, and the inexhaustible source of speculative imagination sprang forth in abundance. We do not linger on the castles in the air through which idealistic philosophies of nature and history thought they could possess nature and history. Various bold combinations have been subsequently confirmed by observation; none without stealthily incorporating experience to their advantage (!). If idealism had a fertilizing influence on natural and historical research, it was because nature and history had first fertilized speculation. The proud denial of the well from which the speculative jugs went to feast could not prevent the vessels from eventually breaking." "The backlash was inevitable. A philosophy ignoring experience was followed immediately by an empirical science negating philosophy. The infallible method of dialectically moving in oppositions called forth, in ironic self-affirmation, its destructive counterpart, empiricism." Both excesses are deficient; the former might deny the influence of the object, the latter the influence of the subject. "But if there, to pure thought, experience, which cannot be replaced by anything, is opposed, then here, bare experience is opposed by the law of thought, which cannot be bent by anything. The reconciliation between the two is the task of empirical philosophy. Kant's assertion of a subject producing the form of all experience must be abandoned, and the form of all experience must be acknowledged as indisputably given, just like its substance. In this way, genuine empirical philosophy stands on one side as realism in opposition to idealism and, on the other side, as the unphilosophy in upholding the law of thought. It is empirical, as it connects to the given as the only starting point, but it is critical; it is idealistic, as it recognizes the subjective nature of sensory experience, but realistic, as it does not extend this

nature to the hidden essence (thing-in-itself) or to the forms of appearance. Thus, it is the opponent and mediator of both opposed worldviews in the school and on the ground of purified criticism. 'Philosophy without experience becomes hollow enthusiasm; experience without philosophy becomes uncritical opinion.' As if by itself, the historical development has redirected philosophy to a method less promising in its promises and perhaps less dazzling in its immediate results, but one that might prove more reliable in fulfilling the former and demonstrating the latter than some of its lofty predecessors. Equally distant from vain self-elevation as from servile compliance with the factual given, it neither seeks to perceive nor to overthrow external experience, but also does not retain it as given when the laws of thought do not correspond with it. As incapable of abandoning pure thought for the sake of experience as of relinquishing the latter for the former, it seeks in possible or actually existing contradictions of both only the joyfully welcomed impulses for further research." "A thousand and a thousand failed attempts cannot erase the joyful pride that fills the human heart at the thought of being allowed to pose tasks whose solution lies in infinite distance. Indeed, it may be effortless and more tempting for the weak to receive the full truth in flight or from the kind hand of the eternal giver, but we, with Lessing, hold the serious goddess too high to want to earn her in any other way than through tireless mental work, and we strengthen ourselves when our strength fails, with the poet's lofty words:

'Only he enjoys freedom and life,

Who must conquer them daily!'

These are the serious and well-considered demands of the author of the discussed writing on the philosophy of modern times, whose fulfillment does not seem far from him anymore. "If the signs do not deceive, the time for a science that does justice to both thinking and experience is not far off. Research, tired of the distracting abundance of empirical facts, begins to yearn for principles and internal logical coherence. Just as philosophers turned to natural science at the beginning of our century, we now see intelligent and celebrated natural scientists turning back to philosophy. Back then, they hoped it would invent facts; now they reach for it to systematize the collected facts. The philosophical task of the present is the critique of all given experience."

A task whose magnitude is undoubtedly comparable only to its difficulty and likely to far exceed the capabilities of an individual! Nevertheless, the demand itself is so justified that, at present, it has hardly encountered a serious and thorough contradiction; and it is gratifying to see how now even specialized philosophers not only acknowledge but also pose this demand. And not only in Germany, the true homeland of philosophy, is this movement making itself felt, but equally so in England and France. As the learned Englishman Buckle recently expressed his views on metaphysics and its method, mentioned in a previous essay. At the same time, it is reported that in France, the renowned Orientalist E. Renan, in reviewing a book by E. Vacherot: "La metaphysique et la Science ou Principes de Métaphysique positive," when making it the basis of a study on the future of metaphysics, expressed himself approximately as follows: Just as in Germany with Hegel, gradually in France, they moved away from Cousin, the head of the philosophical school there. Every philosophical speculation leads to dogmatism. A science that starts at the summit instead of the base is not a science. True science is never finished but always relative, incomplete; an absolute dogma would cut off the further development of science instead of promoting it. Metaphysics can only exist to the extent that it seeks to recognize the laws of reason, harmony, poetry, beauty,

etc., from the facts and counteracts thoughtless empiricism, but not in the sense of a separate science as before. We know everything we know only through experience, i.e., from nature and history. The discussion of certain basic concepts of the human mind, forms of understanding, at most provides logic, not metaphysics. Nevertheless, Renan does not deny that philosophy has a role in all sciences. Thus, it seems established that the philosophy of experience cannot do without the experience of philosophy. But this only outlines the matter in its most general terms, and everything now depends on how things are handled in detail. Already, Locke showed that all concepts from which philosophy proceeds are taken only from experience, and therefore philosophy can never go beyond experience or that metaphysics is impossible. However, this demonstration did not prevent philosophy from continuing and more than ever committing the criticized error. Even before Locke, Bacon, the father of inductive science and empirical philosophy, as well as of materialism and the entire English-French Enlightenment that followed him, had set forth the task of philosophical science just as it is happening again now. He was aware of the shortcomings of both the empirical and speculative methods and used speculation where the former was no longer sufficient. The empirical method, according to him, can never lead to the proof that there are no contradictory facts; because nature is richer than experience, and through induction, the so-called negative instances, which in experience and natural science hold more weight than the positive ones, can never be exhausted to the final test. The knowledge of the whole is always the ultimate goal of all science; a mere accumulation of details, of facts, is of little value. But, as per Bacon, the human mind must not immediately ascend from the individual to the most general axioms and seek from there the middle axioms; instead, it must ascend slowly and gradually from the lowest to the highest, applying weight to the mind to moderate its flight. Experience and syllogism must complement each other. Theories are not final but provisional; thus, philosophy must progress with time and be carried by its current. The science of supernatural causes is revealed theology, while that of natural causes is philosophy, marking the sharp boundary between theology and philosophy, between knowledge and faith. All things, from the lowest to the highest, form a ladder, and so on. Philosophy is incapable of explaining the mind; it is incomprehensible.

The influence of Baconian principles in the natural and experiential sciences is well known, while in actual philosophy, at least in Germany, they seem to have passed almost unnoticed so far. The persistent error that thinking based on concepts without experience is possible has laid the groundwork for idealistic philosophy, which could not resist the tempting temptation and still cannot resist solving the riddle of existence through mere mental operations. But fundamentally, it has ultimately only served theology, which had long since reached its destination on a much shorter and more convenient path than philosophy, which only arrived after much and yet futile effort. Now, if the insight becomes widespread that thinking without experience is impossible and that all thinking must precede experiencing and perceiving, that all things exist for each other and are nothing without mutual relations, that therefore a thing in itself either does not exist or is unknowable to us because it has no relations to other things and there are only things among things (Droßbach) — then, indeed, philosophy will assume a completely different character than before, but also, of course, its domain will be somewhat narrowed in a not entirely unproblematic way. Because what seemed to be the task of philosophy so far will increasingly become the task and subject of individual sciences, as everything derived from a well-established experience through correct inferences carries the character of certainty more or less and can no longer be the subject of actual philosophy, but

only represents an enrichment of our positive knowledge. This cannot be considered a disadvantage; on the contrary, it may only signify a quite natural course of research development. From the very beginning, the relationship may not have been different, and according to the progress of individual sciences, we see their territory continuously expanding at the expense of philosophy. For example, the ancient philosophers examined or brought into the circle of their discussions a multitude of subjects whose resolution is currently expected not in philosophy but only in the sciences, including the nature of the heavens and stars, the shape of the Earth, the cause of geological phenomena like flooding, earthquakes, etc., the objects of geography, questions about the internal or chemical composition of bodies, the conditions of organic life, etc. etc. What is called Aristotelian philosophy covers the entire range of theoretical and practical knowledge at that time. However, as knowledge itself progresses in content and scope, it moves away from the philosophical center and begins to be distributed among individual disciplines. Although philosophy gradually loses ground as a separate science, it gains on the other hand, in that the material of experience available for its processing continues to grow — an advantage that must be valued all the more as philosophy, in the sense of the opinions discussed here, approaches experience and seeks to align with it. What it loses in terms of conceptually lacking ideas, it regains abundantly in experience and reality itself, as this reality, as we know, is unlimited and infinite, offering our research an endlessly open and boundless field in all directions. Recalling the extraordinary progress of the positive sciences in recent decades, the almost unbelievable increase in our knowledge of many of the most important questions and subjects that were previously beyond reach of investigation, one can indeed look into the future with a sense of pride and hope, and not regret the loss of ideal-philosophical systems in comparison to what has been gained and what is still to be gained. Apelt (Theory of Induction, 1854) also arrives at very similar results in a thorough examination of the method of philosophical research, as presented above.

"We cannot construct the nature of things a priori from philosophical principles," it says in the preface, "but we can only apply philosophical principles to experience to explain the connection of empirically given facts. According to Apelt, concepts are only reflections of what is observed and are bare and void without this, while the observed has content even without concepts. The magical power of induction, according to him, lies in its ability to recognize the law from the compilation of observations and facts; it is the method of reducing knowledge to its principles and the bridge that leads from facts to the law, from accidental truths to the necessary truths of reason. It initiates what is called "combining natural observation," which seeks the uniformity in the diversity of disparate natural phenomena and is truly at home in the physiology of the organism and in the natural history of the Earth. "The laws of nature," it says on page 106, "are the final reasons, the ultimate principles of our insight into the nature of things. We must never appeal to the will of God or an appropriateness in explaining natural phenomena. Teleological reasons are inadmissible in the natural sciences." All of this should not lead to the belief, of course, that even the most hardened empiricist would shy away from accepting that experience itself is already science and philosophy or that it is sufficient on its own to establish such. Both Zimmermann and Apelt make efforts to show that experience must be processed or reflected upon according to the law of thought to enable the establishment of principles and thus of science and philosophy. After all, the first seeds of such processing already lie in what we call experience, and experience does not consist, as some may think, in a mere accumulation or haphazard

juxtaposition of facts but in a connection of these facts with each other according to the laws of logic and reason. Such a procedure is indispensable for establishing true experience because the facts in nature itself do not stand or only seem to stand randomly side by side; in reality, they are dependent everywhere on general laws underlying them. Thus, the possibility or danger of error begins here, and the magnitude of the latter is clearly demonstrated by the sciences of experience themselves and their history. The difficulty of making correct experience, or, in other words, deriving general and widespread facts from mere sensory perceptions, is often much more challenging than the processing of once-established facts through speculation and often gives rise to the most difficult and consequential errors. Much has already been attempted to be smuggled into science or into the general consciousness under the venerable name and mask of experience! What blatant nonsense, what palpable superstition has not tried to rely on it and continues to rely on it! Thus, already in the first determination of what one deems justified to call experience, the organizing and discerning activity of the human understanding begins—sorting out the true from the false.

How much more so where the material provided by experience is organized according to uniform principles and begins to be processed further into general and universal conclusions in the sense of systematic science. Here, as is well known, much is debated about the methods of inference to be used, and recently, the so-called inductive method of the natural sciences or the method of reasoning from the particular to the general has been given preference over the deductive method of philosophy or the method of reasoning from the general to the particular—although, as it now seems to us, without good reason, as it is less about the method of closing, but much more about the substance that is laid as its foundation. For once you have reached the point where the given empirical material is processed by speculation according to the law of thought—whether in the interest of philosophy or a specific science. So it may no longer depend on a single method, and unnecessary constraints should not be imposed on the human mind; rather, all methods must be fair to it as long as they lead to the goal, i.e., the exploration and better understanding of truth. Indeed, experience itself shows that all these methods tend to be used interchangeably in any such situation, and in every scientific or philosophical investigation, they playfully intertwine in various ways. Even the most insignificant experiment cannot be conducted without a thought operation extending beyond mere experience, without a hypothesis. Induction and deduction, explanation and hypothesis, analogy and abstraction, theory, critique, and history are utilized to trace the truth, and may be used in philosophy according to need — provided only that their relationship to experience is not ignored, and these methods are not used to operate outside of or even in contradiction to experience, based on overly broad or empirical ideas. The danger or temptation to fall into this error is undoubtedly greater in the deductive style of philosophy than in the inductive methods of the natural sciences, and it threatens in philosophy itself, even where the original starting point was experience. However, it can be avoided as long as we remember, in the progress of each investigation, that experience is always the primary source from which we drink, and that all those methods must serve us more to interpret and connect experiential facts with each other than to construct them in the manner of speculative philosophy. In this sense and under this condition, every philosopher who engages in or conducts scientific investigations is already, in fact, unable to know in advance to what extent such research may lead him into the realm of philosophy in its further consequences. Also, under this condition, the previously assumed opposition between philosophy and experience cannot actually be discussed anymore, as they no longer fight

against each other but mutually support each other; and even the opposition between experience and syllogistics or between empiricism and speculation, which has perhaps been substituted for it, loses its edge, as both must acknowledge that their interest lies only in mutual connection and one is nothing without the other. This has long been recognized even in the empirical sciences! How much more may it be acknowledged in philosophy, which, in the modern sense, is primarily tasked with processing the material of experience through various modes of thought operation! Speculation itself cannot be something harmful but is indispensable in science and philosophy, and only its hitherto incorrect application in philosophy seems to warrant all the criticism heaped upon it! Without a doubt, it must also be allowed, in the processing of the material offered by experience, to go far beyond it with the help of so-called guiding maxims and to seek laws or connections and explanations even where actual research has not yet reached and may not even have the prospect of reaching. The systems of ancient philosophers, especially the so-called cosmologists, who, based on the scantiest knowledge of nature, already formulated theories about the formation of the world, etc., which closely resemble our modern opinions supported by millennia of research. The history of sciences itself shows that theories, systems, and hypotheses were continually formulated based on only a small amount of empirical material, which expected their confirmation from the experience of the future and received it, either wholly or in part. Indeed, a significant part of our empirical sciences itself, and perhaps the best of it, is not the acquisition and outflow of immediate experience and observation but gained as a result of sometimes speculative, sometimes combining contemplation of nature, such as what we know about the history of the Earth or the physiological processes within the organism. Our knowledge about these would be nearly nil if we were forced to rely solely on immediate experience and observation. Thus, speculation as such cannot be the exclusive or primary property of the so-called ideal philosophy but must and should be used by empirical philosophy as well, if not to an even greater extent than by the former. Examining the matter more closely in its proper light, one comes to the seemingly strange result that ideal philosophy actually carries a much less speculative character than empirical philosophy, as it does not inquire and investigate everywhere, like the latter, into the actual internal connections of things but easily and superficially dismisses a multitude of the most serious difficulties through some general unproven or unprovable assumptions. In other words, it takes a lot of facts from experience as inexplicable in themselves, according to which it derives them from supernatural, arbitrarily set, and also inherently unknown causes, and thus ultimately spares itself the trouble of thinking and penetrating into the matter itself without further ado. Because while empirical philosophy does not shy away from this penetration and does not satisfy itself with such general assumptions not taken from experience but seeks to trace all the phenomena it encounters back to known laws or strive to discover new ones of the like. believes that ideal philosophy has done enough when it uses a word or concept to explain unknown connections, which, however, explains nothing because it itself requires explanation and actually only contains a circumlocution or apparent concealment of our ignorance. Such words or concepts are, for example, instinct, life force, the soul, the Absolute, the moral law, etc. The use of such expressions does not make the obscure clearer but only darker, as it misleads superficial minds into believing in the existence of an explanation where none actually exists. They may find comfort in expressions concerning the most challenging problems of genuine research, while empirical philosophy does not shy away from these problems. Instead, it either attempts to resolve them or, where it cannot,

presents them as gaps to be filled in our knowledge. Nevertheless, these gaps cannot prevent them from, based on empirical facts, connecting things or phenomena that seem to be very far apart from each other in superficial observation, even if the explanation of this connection is currently impossible or not even hoped for. For example, in discussing a highly relevant point related to the psychological materialism (with the approval of the masses and the laughter of paid writers), it is often objected that the mind cannot be explained from matter. Those who make such an objection stand approximately on the standpoint of a carter who refused to be convinced that there was not a horse hidden as the actual engine in the locomotive rushing before his eyes, or like the ancients who believed they had to explain the movement of planets by invisible celestial beings leading them as if on a leash. Just as a person unfamiliar with all the laws of mechanics and without any concept of the internal construction of such a machine and its guiding springs, when suddenly confronted with it, cannot see its movement as self-generated but would believe in some secret and invisible force hidden inside as an unrecognizable cause of its life manifestations, similarly, the human understanding cannot decide, in the face of the above-mentioned wonderful relationship and without any insight into its secret springs, not to believe in such a secret and invisible cause. Indeed, if you allowed that person the most accurate examination of the machine and its parts, if you showed them that the destruction of one of these parts also ends its activity or makes it defective, all of this would not change their mind without having the key to the puzzle in hand or without a systematic insight into the principles upon which the machine is built—just as all empirical facts about the relationship between body and soul cannot convince the spiritualist of the fallacy of their opinion. The author is not unaware that there are very competent and not necessarily idealistic scholars who, like Apelt mentioned earlier, adhere to the conviction that "the physical and the mental are separated by an unfathomable chasm," over which "a bridge will always remain impossible for human science to build." However, this does not prevent the empirical philosopher from viewing that gap not as a gap in reality but only as one in our knowledge. For if it were a gap in reality, it would simultaneously be an incurable rift through nature and the world, making all real science impossible, and humanity with its half-mental, half-physical life would sink to a pitiful hybrid, purposeless and clueless, tossed back and forth between heaven and earth. similar to those electric dolls

that dance up and down between two opposing poles, or

those fallen angels who, with the consciousness of heaven in

their hearts, are bound for the underworld. Fortunately, experience speaks differently and provides guiding maxims for the philosophy relying on it in its research, which are not, like those of ideal philosophy, taken from the realm of faith or ignorance but from the realm of science. In gratitude for this, philosophy corrects the inherently foolish and clumsy experience, dictates the paths it should take in further research, and organizes its results in a systematic order under unified perspectives. Instead of delving into much more about the value and worthlessness of experience and its interesting relationship to science and philosophy, let the words of Whewell, the famous historian of the inductive sciences, stand at the end of the essay: "Without laws, facts have no connection and no coherence; without facts, the law has no reality. Knowledge only exists in the combination of both."

25. On the Origin of the Soul

(1862)

Who would not eagerly and impatiently reach for a text promising to shed light on such an important and obscure matter as the origin of the soul, as its title suggests? Of course, such eagerness is immediately tempered by the well-founded concern, based on previous experiences, that the hope raised by the title may not be fulfilled. Yet, we are content even if only a grain of truth, however small it may be, is offered to us in matters that seem to defy all exact research. And indeed, the author of the work under discussion, in the introduction to his present psychological investigation on the origin of the soul, takes a stance that does not entirely cut off this hope from the outset. According to him, in the developed human being, as he elaborates, we encounter only moments of a unified interaction between two forces or the true essence of the human being and the external world, in which the contribution of each of these moments cannot be determined anymore.

**) On the Origin of the Soul. Dr. Heinrich von Struve, Tübingen 1862.*

Therefore, to explore the essence of human beings, nothing remains but to look into the depths of evolving life. Since every psychological self-awareness is primarily based on self-consciousness, which represents only one stage in the life of humans and, therefore, self-awareness is the recognition of an individual moment in this progressing developmental process, anthropology must increasingly be pushed back to developmental history. Just as the chemist goes back to the basic elements, the anthropologist must trace back to the simplest elements forming humans. This gives rise to the question of the origin of the soul, and the question of its essence is always connected with its origin. Unfortunately, according to the author, empirical research or natural science, which he rightfully criticizes for the lack of systematic progress, has achieved almost nothing in this regard lately. It is too focused on the factual and forgets that it has to contribute to the essential understanding of nature and humans. While empirical explanation of phenomena is only a means for the essential understanding of these two. But such an investigation must happen; because in the evolved life, there are no clues to dissolve the abstract dualism between body and soul, which the latter perceives itself and distinguishes from the former; hence, if such a solution is possible, it can only be found in the joint inseparable developmental process of body and soul. At least, exact science has provided valuable preliminary work for solving the question. As a prelude to this solution, the author distinguishes and critiques three philosophical directions in the consideration of the essence of the soul: materialism, spiritualism, and an intermediate ideal-real or real-ideal direction, which he aligns himself with. Materialism, the stepchild or Cinderella of philosophy, is dismissed on two sides with expressions of deep contempt, and the materialists are asked to conjure thinking beings out of retorts to substantiate their claims! With this remarkable demand, which admittedly reveals a somewhat childish perspective on our philosopher's part and does not inspire favorable judgments about his critical abilities, he may not have considered that, with the same right, one could demand from philosophers to conjure beings from their philosophical concepts to substantiate their claims—beings that eat, digest, walk on legs, etc. Moreover, the philosophers would benefit from having the skill of "magic" ahead of the materialists. We must agree with the author only in that he believes materialism cannot counter anything to its claims, as there are assertions known for which a sensible person can only respond with Nothing! The author is somewhat more appreciative of spiritualism, characterized as an explicit dualism of spirit and matter. However, according to

the author, this dualism cannot be empirically justified, as we do not find these abstract concepts realized in their isolation anywhere, and the definition of the concept itself cannot grasp them in isolation; much less can nature itself! "The separation between external and internal," it says on page 15, "is generally only a logical ability of humans, which certainly promotes his knowledge essentially, but often prompts him to succumb to deception, as if this conceptual separation, established in him, were also a real one in the external world." And further at other places: "Dualism, with the organism, thinks it sees a fundamentally new force emerge in nature but forgets that if nature is to be an empirically self-contained unity, as it is, then there can be nothing essentially different in it; for essential difference negates the possibility of any mutual relationship." — "But these new relationships and causes that bring the organism to light do not fall under the concept of a new life force now appearing, essentially different from all other forces; instead, it is a potential increase and intensive development of the already existing natural forces; it is essentially the same absolute life inherent in the entire nature, which expresses itself here in organic and psychic laws and there in chemical and physical laws." — "If matter, or to avoid ambiguity, if being has the ability to consolidate itself as conscious being, then it is indeed different from being that does not possess this ability; but with this distinction, an essential difference is by no means established: but it is inherent in this ability to distinguish itself as being from other being, but in this distinction, it is not at all founded that the distinguishin g being must be essentially different from the being that does not possess this ability." And finally: "When we grasp the two one-sidednesses in relation to the spirit of contemporary philosophy, we must admit that the entire trend of current speculation seems to strive for the connection of these sharp contrasts rather than their one-sided development," and so on. The author characterizes the well-known 3rd part of Fichte's theory as at least "semi-dualistic," where the "interconnection" and "inner essential similarity" of body and soul are described, in which both are supposed to be "different substances" and are to arise in a separate manner, and he aims to empirically demonstrate the separability of the soul into its genetic factors, as well as the real empirical origin of the soul in and with the body, where the physical and the psychic mutually condition each other. These inherently sound assumptions, closely resembling the despised materialism, unfortunately do not prevent the author from falling into the old and eternal errors of speculative philosophy as he progresses, bringing his preconceived categorical opinions into nature instead of carefully deriving them from it. The second section deals with the emergence of the new in general and of humans in particular, connecting to the empirically given, according to the author. Here, the author asserts that in the entire natural world, there is an unalterable law stating that no new life arises from itself but only as a third from two existing differences. The interaction of these two differences can occur in three ways in different natural realms: through combination, mixture, and penetration, with combination being the lowest and penetration being the highest stage.

In the organic world, the connection is mediated by two genetic factors that form the third through their union. According to the author, humans themselves arise through mutual penetration of their two genetic factors, with the first moment of their creation in the act of conception requiring mutual penetration of these factors and their foundations. In section III, the focus is sharpened on the body, and the genetic factors bringing humans into existence are examined more closely; initially, the physical factors of sperm and egg, which, according to recent research, not only lie together but literally penetrate each other. In the essence of this interesting process, Mr. von Struve has delved so deeply philosophically that, for him, "the

connection of seed and egg in general is no longer a mysterious process whose purpose is still foreign to us, but it appears to us as the connection of the concepts of mobility and activity concretely realized in one substance with the concepts of preservation and receptivity concretely realized in another substance, and the connection of these two groups of concepts forms precisely what is conceptually called organism and life, namely, it forms the peculiarly interwoven relationship of mobility and preservation, of activity and receptivity." (!) (Indeed, very peculiar, so peculiar that "receptivity" for this type of philosophy also presupposes a truly peculiar receiving apparatus!) But let's continue! Juice and cell formation now represent the two principles, represented by the two reproductive substances, that bring forth the organism and continue to coexist. Similarly, the soul arises, like everything finite, empirically and according to the general laws of emergence, as it develops from two original factors without an actual division of the generating souls being necessary. It is to be considered as a "given empirical fact that in the physiological reproductive materials, the two factors forming the soul must be present as the peculiar psychic content of the physical; that only in the reproductive materials are the forces effective in bringing the soul into empirical existence." with which recognition, indeed, the author deeply entangles himself in the "brutal materialism." The evasion of this consequence, earlier asserted, that the newly emerging soul is a distinct formative power independent of parental souls, is, according to him, a "fantastic abstraction." For him, only the two parental sex individuals and the reproductive materials derived from them are the means by which the species forms the new soul; independent of these two means, the species is "nothing," and "the preconceived speculative conceptions of the soul as an inseparable simple essence, which further oppose the empirical origin of the soul, cannot in the slightest way impede the ongoing research on the genesis of the soul, etc."

The question now arises about the identity of these two frequently mentioned genetic factors of the soul that bring the "I" into life as an empirical phenomenon. Rejecting all so-called dialectical theories of the self that provide no explanation but evade the actual task, the author seeks to solve it by assuming a so-called subjective and a so-called objective self. Their mutual organic connection represents the empirical self, composed of a duality of selves or the soul. A more detailed examination of these different selves in their isolation is apparently not possible from our evolved state, and for abstract speculation, it remains an "unsolvable mystery" how something can attain such internal closure that not only overcomes the knowledge of this closure but also knows its internal seclusion in contrast to the external. "I" and "non-I" are two absolutely unrelated concepts but are brought into real internal relation to each other in the empirical self—according to the author, this can only be explained by the fact that this opposition itself forms the empirical self. In other words, two separate selves are the genetic factors of the empirical self. Applied to genders, it initially reveals that in men, the "subjective self" predominates, while in women, the "objective self" prevails. Therefore, in them, the two psychogenetic factors repeat: the male as the predominant thinking activity and the female as the predominant emotional activity, and so on. The true psychic life is attributed to the distinctive content of the sperm and the egg, and the reproductive materials are not only physical but also psychic products of the parental organisms, in which the psychic sexual power is realized as a self-acting potency emerging organically from the psychic life of the parents. (!!) In this psychic life of the reproductive materials alone is the explanation of sexual drive to be found! The souls of the sperm and the egg are, in a sense, the subjective and the objective self, and so on. However, the soul does not imply an ideal-unconscious formative power on the body, as J. H. Fichte suggests, but physical and

psychological aspects develop as entirely equal potencies simultaneously and side by side. This "formative power" has only arisen from an experience-contradicting abstraction."

So, how does the psychic organism finally develop from these genetic and (by Mr. von Struve) "given" factors? Already through the act of copulation, both enter into a peculiar interrelation, and the subjective self of the man finds, so to speak, an opening (sic!) through which it flows out unimpeded from the psychic organism. However, through this outflow, it weakens to the point of becoming entirely an objective self again. Meanwhile, the isolated, detached subjective self becomes independent but loses consciousness and clarity, only to reemerge as a conscious distinguishing force through some new connection. This new connection is provided by the woman, in whom the objective self seeks activity and does not find satisfaction in unity with the subjective self but feels an indeterminate emptiness that it seeks to fill in various ways. However, this desire is concentrated on a single point, "through which the foreign should enter the organism, etc." (Our venerable master Goethe already said, "It is their eternal woe and sigh, to heal from a single point.") With this desire, the objective self or the egg, as the "outermost outpost of the female psychic organism," succeeds in attracting the reluctant male factor, which opposes any connection with the character of repulsion to maintain its independence. It draws it in, thus creating a unified and harmonious whole from attraction and repulsion, where the two opposing and combatant forces, through their opposition, remain distinct while preserving attraction and repulsion as the specific life of the whole. This real process of connection between these real opposites is now, according to Mr. von Struve, "the deep mysterious puzzle of origin," and the development of the soul is thus a physical-psychic act, arising from a struggle between the male and female principles, in which neither can completely triumph but only prevail. The further assertion that the soul, like the body, must be developed in the maternal organism is convincingly demonstrated through an analysis of pure feeling and pure thinking.

This should be even more appreciated since it is now shown that the well-known demand occasionally made by ignorant women on the subjective self, to take over the functions of the objective self, not only contradicts nature but also opposes the higher authority of philosophy! Furthermore, it is demonstrated how the two selves gradually merge, forming the will movement as a third entity or the immediate self of the deed, whose seat is in the spinal cord, and so on. Stubbornness is the specific expression of the subjective self, greed that of the objective self; love is the reciprocal relationship between the objective self and the external; pain is the feeling of subjective dependence on objectivity; consciousness and self-consciousness are expressions of the "real condition of the subjective self in relation to the psychic organism," and ultimately, the evolved soul is "the organic unity of three self-acting psychic organs connected and internally related to each other according to an objective law of life." This triad corresponds to the empirical facts of understanding, feeling, and will, and the physiological foundations of brain, heart, and spinal cord.

According to the author, this entire perspective appears to be the "only legitimate" one and in line with experience, even though experience in reality only plays the role of a deceptive signboard promising goods that are not present in the store. After laboriously navigating through the author's dry abstractions, the reader gains no other benefit than a renewed conviction of the absolute emptiness of philosophical formalism. While the author was guided by a correct intuition to eavesdrop on the spiritual essence during its truly evolving process composed of two different factors, and to draw conclusions about it from the results

obtained, such a method, if only the material used were more complete, would undoubtedly lead to similar results as it has in physiological sciences. After recognizing that all organic entities are based on gradual development, research in physiology has turned with particular enthusiasm to the history of reproduction and development, revealing a series of the most remarkable insights that should now serve as a foundation for similar research in a psychological direction — provided such research is conducted with the intention of promoting real truth. The author, however, despite attempting to boast of "experience," has not done this and could not, as these investigations and insights were unknown to him. Even if they had been known to him, they would have brought him no benefit and perhaps only served as a cumbersome backdrop for his philosophical constructions, as he is not striving to explain and comprehend reality from itself but rather attempts to impose his philosophical ideas or, more accurately, his shortsighted norms of thinking and arbitrarily created laws on it in the well-known deductive manner of philosophical speculation. Therefore, from the book, one learns nothing about the actual origin of the soul, only about how Mr. von Struve envisions this origin. It is also noted that other philosophers (Herbart, Fichte) think about it entirely differently, and that, for example, I. H. Fichte, under whose auspices the book seems to have been written, attributes a so-called pre-existence even to the personal soul, thus almost entirely removing the research from any real control and experience. Therefore, like the majority of his philosophical colleagues in similar matters, the author provides no real explanations, only verbose and tiresome circumlocutions with many "words," which do not clarify the matter itself but possibly make it even more obscure. This "word philosophy" has been so frequently denounced and put on the pillory in recent years and decades that it takes a lot of courage or shortsightedness to continue presenting it to an audience that has long lost faith in the abracadabra of philosophical masters. Indeed, when wild, unregulated thinking is accompanied by audacious arbitrariness in construction and impudent pretensions to know better than nature and reality themselves, when a tightrope-walking ball game with words and concepts, built and dredged up from mere words, is still allowed to claim the title of philosopher within the German scholarly world, it can be hoped that the healthy sense and common sense of the educated masses will eventually learn to distinguish such pseudo-philosophers from the real, truth-seeking friends of wisdom.

26. Physiological Inheritances.

(1862)

"The origin and development of the egg in the maternal body, the transmission of physical and mental characteristics of the father through the seed to it, touch upon all questions that the human mind has ever raised about the essence of human existence."

Virchow: Woman and the Cell.

Modern times have acquainted us with a number of facts and experiences regarding the inheritance of physical and mental traits, shedding a highly remarkable and wonderful light on the laws of development not only in the physical but also in the intellectual world. Interest in these matters has received a particular stimulus in recent times through Darwin's work, which, as is known, partly bases its famous theory on the laws of heredity. While these laws themselves are still completely unknown, the fact of inheritance is all the more familiar, sometimes extending to extraordinary and unusual characters or peculiarities, leaving no doubt about the inheritance of the ordinary, for which countless examples exist. Indeed, it is one of the most common and long-known experiences of physicians that diseases or predispositions to diseases can be inherited from parents, even from grandparents (skipping intervening generations) to children, and these diseases can be both of physical and mental nature (so-called mental illnesses). Furthermore, it is an undisputed fact of daily life that children resemble or are similar to their parents in physical and mental aspects, and the offspring is usually a mixed product of the traits and peculiarities of both progenitors, or, as Lewes states, "the organization of the descendants always and necessarily resembles that of the parents in their general characters." By the fact that in this generation two different factors come together and properties of one part can be neutralized or changed by the counteraction of the other, the result is often unclear, but the attentive observer will be able to deduce it in detail and in its entirety as a third from those two causal elements.

This applies not only to humans but to all members of the organic world, and the principles applied in the so-called breeding of plants and animals are largely based on such unquestionable experiences made about inheritance and on the art of achieving the most advantageous result by crossing and combining good complementary traits. However, the extent of the power of inheritance is demonstrated not only by this ever-present and asserting law of the similarity of children to parents or grandparents but even more strikingly by the frequently observed examples of the transfer of very special characteristics differing from the ordinary of the progenitors to the descendants. Each individual brings with it, in addition to the characters of the species to which it belongs, a sum of specific determinations or peculiarities that are transferred wholly or in part to the offspring, sometimes persisting, sometimes only through several generations. Striking and even very remarkable examples of this kind have become known in not a small number. So, among other observations by Draper-Mackinder (British Medical Journal 1857), the absence of the first or second phalanges of several fingers has been inherited through seven generations. The examined child had no second phalanges on eight fingers, and the great-grandmother of the great-grandmother was the first to exhibit this anomaly. C. Willis (Lancet 1857) tracked the so-called polydactyly, not uncommon in some families, through six generations. Similar cases are narrated by Burdach (Physiology, Volume I, p. 512), who accurately asserts that "descent has more influence on our physical and mental character than all external, material, and psychic influences combined," and other writers. The heritability of old age is known, and the surest prospect of longevity, according to Burdach, lies in the descent from a family where it

is native. Conversely, in some families, early death is so common that only rarely does an individual member succeed in reaching an advanced age. In other families, so-called hemophilia or the tendency to uncontrollable bleeding with the slightest injury is hereditary, while English parents who have spent a long time in India pass on the tendency to liver diseases to their children, as observed by Bell in England. However, these peculiarities not only continue through a few generations but become permanent, giving rise to the emergence of entirely new races or varieties, as attested by other experiences. For example, all so-called blood beeches descend from a few trees where the red coloring of the leaves inexplicably occurred naturally. Waiz (Anthropology of Natural Peoples, Volume I, p. 92) tells: "One of the most famous examples of this kind is that of the so-called Otter sheep, bred from a sheep with an especially long body and short limbs in Massachusetts (1791) and rapidly spread in North America because care was taken for their breeding since they cannot jump over fences. (Philos. Transactt. 1813.) This race has not only been preserved but also proves to be so durable that when crossed with ordinary sheep, the hybrid always takes after one or the other race. Similarly, in Hungarian pigs, the split hoof has become hereditary. In 1770, a hornless bull in Paraguay sired only hornless calves (Azara); a buck with a downward bent, cartilaginous, and hump-shaped protruding nasal part passed on these peculiarities to his offspring (Pallas); accidentally occurring feather tufts in many bird species are inherited and become a dangerous disease through proliferation. (Ibid.) Similar examples have been compiled by Farrold, Foissac, Knight (1. c.). That temperament traits are also inherited, e.g., in horses, viciousness and a tendency to kick (as in Polish horses) or docility and gentleness, is known." However, more important and significant than these cases of temporary or permanent inheritance of innate or original characteristics and peculiarities are those cases in which such peculiarities are inherited by descendants that have demonstrably arisen or been acquired during life itself. With the simple demonstration of this fact, the possibility of an endless progress or at least an endless transformation of the organic world on both physical and mental sides is given, without the need for external or inexplicable forces and influences. The acquisition itself may have occurred in various ways, and the peculiarity may have arisen either accidentally or been artificially or intentionally formed. It may refer to physical deviations from the norm or to mental instincts, inclinations, abilities, etc. Particularly numerous and striking are examples of so-called acquired instincts or drives in animals and acquired inclinations or predispositions in humans, easily explaining many phenomena that were previously believed to be the result of an incomprehensible higher arrangement and inherent ideas or drives.

This explains the well-known and often cited inclination of hunting dogs to point at game, which they either exhibit without training or quickly learn with only slight guidance. This inclination or ability is inherited from parents and ancestors who artificially developed such a tendency. Similarly, shepherd dogs inherit the tendency to circle the herd and the predisposition for vigilance from their ancestors. In general, trained animals produce offspring that can be more easily educated than those from untrained ones. Horse trainers know well that the offspring of well-trained horses show much greater aptitude than those of less or not at all trained ones. Offspring of draft animals (oxen, horses, etc.) pull better than wild animals or their descendants.

Cats inherit the inclination to catch rats instead of mice, and Leroy recounts that in places where foxes are heavily hunted, their offspring already display great cunning and caution upon their first appearance. Young dachshund offspring, experienced in hunting martens, show intense excitement at the scent of a marten, while hunting dogs behave similarly in the presence of woodcocks, and so on. The horse of Spanish America, trained in a peculiar gait or the so-called pace, passes this characteristic on to subsequent generations, and English sheep adapted to turnips only began to consume them in the third generation after their introduction. The tumbler pigeon in England has the hereditary habit of rising in dense masses and then tumbling down. According to Burdach, "young dogs are often kept for the same task for which their parents were used because they are more skilled and willing for it than for another; chicken dogs have been trained to go into the water, and the more the water has become their element, the more their offspring show a voluntary inclination to go into the water." Wait (loc. cit., p. 93) recounts, based on Lyell, that at an altitude of 9000 feet above sea level, greyhounds in Mexico could hardly be used for hare hunting, but their offspring could be easily trained for it. He also mentions that geese introduced to Bogota initially laid few eggs, only a quarter of which could hatch, and half of their young died. However, in the second generation, they fared much better. The giving of milk by cows after weaning, barking of domesticated dogs, and the meowing of domestic cats all fall into the same category, according to Waiss. Other examples of inherited acquired instincts can be found in Lukas's comprehensive work (Traité de l'hérédité, 1847). Lewes (Physiology of Common Life, 1860, Volume II) recounts: "I had a young puppy taken from its mother at six weeks old, so it could not have learned to beg from her, and yet it began to beg for everything it needed; one day I found it begging in front of a rabbit hutch, seemingly inviting the rabbits to play. Girou tells of a man who had the habit of sleeping on his back with his right leg crossed over the left. One of his daughters showed the same peculiarity from birth and constantly assumed this position in her cradle." The same author claims that the vice of drunkenness, the passion for gambling, the inclination for theft, for piety, and the like are inherited. Indeed, the heredity of originally acquired talents or predispositions occurs in humans, and in some families where no degeneration through crossing takes place, certain mechanical or artistic talents are permanent, a well-known fact demonstrated by numerous examples. Lewes mentions, among others, the proverbial "esprit des Mortemarts," the "wit of the Sheridans," the son of Tasso, the Hirschel, Coleman, Kemble, Coleridge families, and the well-known example of the Bach family, where musical genius was distributed among over 300 relatives. Waiss adds that missionaries in Hindostan found the children of Brahmins more capable and talented than those from lower castes, and similar experiences exist elsewhere. "The history of artists and scholars, like that of royal houses, teaches us that a more significant general liveliness of the mind, diligence, and capability for deeper, versatile education or powerful effectiveness are not uncommonly preserved through several generations in individual families, while others are equally characterized by opposite qualities. The same is confirmed by a slightly more penetrating look at the history of families in ordinary civilian life," and we might be add.

Upon the tremendously significant diversity of social classes in European cultural life itself, both physically and intellectually, Burdach comments, "The intellectual education of parents," gives children a greater capacity for education: the young savage is, with rare exceptions, unresponsive to European culture or merely adopts its appearance without finding happiness in it." Furthermore, the well-known experience can be added here that the so-called Creole negroes in America (i.e., those born in the country) show much greater abilities than

the imported ones and generally improve to such an extent that the former are paid much higher than the latter. Some striking phenomena in the history of nations can also be explained by this natural law in an easy and unforced manner—such as the enduring mercantile genius of the Jews for thousands of years, the softness or warlike disposition of certain nations, e.g., the French, the inherent inclination to aristocratic sentiments and posture among the nobility, the particular aptitude of certain peoples or communities for certain occupations, the development of homesickness, stupidity, and so on. If you add the continuing influence of certain uniformly acting external circumstances, a specific and easily recognizable type can form within such communities, even in the midst of one that is completely different.

A keen-eyed correspondent of The Times recounts from Northern Italy, while speaking of the Austrian army, that there is scarcely an army in which so many so-called soldier families exist, considering it a right to belong to the army. Their members gradually acquire distinct facial features and are easily recognizable among others. Also, the remarkable instincts of animals, whose existence posed such a wonderful puzzle for previous philosophy, seemingly explainable only through supernatural influence, can be understood quite easily as the necessary result of a very gradual education and habituation brought about by circumstances, following the law by which acquired abilities, inclinations, and traits are inherited by offspring. In terms of physical traits, everything related to the perpetuation of acquired characteristics can be mentioned—everything about natural and artificial breeding in plants and animals, the inheritance of acquired diseases or predispositions to diseases in offspring, the refinement of shape and facial features in certain social classes or professions, and vice versa, what has become known about methodical education for certain occupations, and so on. Recall the improvement of fruit, etc., through breeding, which in 15 to 20 years turns a so-called wildling into a good fruit tree and has produced the delicious yellow turnip from the thin, dry taproot of the wild yellow turnip; think of the large number of the most splendid varieties of flowers produced through artificial crossings, and how this method forms the main aspect of current floriculture; consider how insects, for example, bees, through a peculiar type of nourishment and their own care, raise queens from ordinary worker bee larvae in special chambers or how ants bring sterile workers to complete development through peculiar nourishment; think of the monsters and abnormal shapes that can be artificially produced during the incubation of chicken eggs through special treatment; consider the extraordinary results of animal breeding in England, where cattle for fattening with thick bellies, thin legs, and small heads, even without horns, where model horses for pulling or racing, where sheep for wool, where so-called thoroughbred pigs, etc.—even where individual humans as boxers, runners, jockeys, etc., are educated! Even physical deformities, mutilations, etc., that deviate from or contradict the idea of the species, whether produced artificially or by chance, can be temporarily inherited. For example, horses that have had the same body part burned with a glowing iron for several generations are said to leave this mark to their descendants, and cut tails in horses, dogs, etc., are supposed to produce a stub-tailed offspring. Similar principles are said to apply to the deformation of skulls, a practice common in some ethnic groups, circumcision among Orientals and Jews, among whom the absence of the foreskin is often found in newborns, and the smallness of the toes of European children compared to indigenous peoples, and so on. Waiß (loc. cit.) reports: "Williamson saw in Carolina dogs whose tails were missing for three to four generations because one of the ancestors had lost it by accident. A three-year-old cow that had lost its left

horn through a suppuration process gave birth to three calves, which only had small nodules on the skin instead of the left horn (Thaer)."

Dogs and horses, whose tails or ears are docked (for example, the sled dogs in Kamchatka Langsdorff, Remarks on a Journey Around the World, 1812, II, 236), often pass on this deficiency entirely or partially to their offspring (Blumenbach according to many observers). " Other examples of hereditary deformities and mutilations are compiled by the same author from R. Wagner (Natural History of Man II, 245 ff.) and Lukas (ibid. II, 490), and he also refers to an observation by Guyon (l'Institut 1848, II, 92 and Nouv. Ann. des voyages. 1848, II, 390), according to which among the Chaouia Berbers in the Aures Mountains, the absence of the earlobe, which also occurs among the Cagots in Spain, undoubtedly became widespread through the inheritance of this peculiarity that once occurred by chance. Lewes (ibid.) also knows of a number of similar examples and refers, among other things, to frequently observed cases of the heredity of certain physical features or peculiarities in individual families, e.g., the well-known "Austrian lower lip," the "Bourbon nose," the Roman family names of the Nasones and Buccones, the case of the Bentivoglio family cited by Haller, in which a small external swelling was always inherited from father to son, and similar instances. Wait further recalls the large physique produced by Friedrich I's great bodyguard of Prussia, the heritability of hair color, temperament, the sharpness or dullness of individual senses, etc. With examples of the inheritance of diseases or predispositions for diseases, which must have been acquired by ancestors at some point in time and in some way, one could easily fill whole pages. Wait cites the well-known porcupine people, people with multiple fingers or webs between them, the hereditary transmission of blindness, deaf-muteness, goiter, cretinism, deaf-muteness, albinism, etc. Certainly, the principle of inheritance would exert even greater power and clarity in this and any other respect if not constantly countered by the irregularity of crossbreeding, especially among humans. "The variations that arise in this way," says Wait, "become hereditary, especially when only individuals already possessing them mate with each other a situation that will rarely occur in the modern civilized states of Europe, given the high population density, extensive transportation, and relatively lax social stratification. It may happen more frequently in conditions of greater originality when isolated families gradually grow into a population without significant external influx." A physical or mental characteristic, predisposition, or inclination of the father that would have been inherited under favorable circumstances can be negated or nullified by the influence of the mother, and vice versa. Even unfavorable external circumstances in general may often prevent newly emerged characteristics from being perpetuated permanently or even for a short time, while the artificial breeding of animals and plants clearly shows that where intentional crossbreeding and external favoritism are applied to favor inheritance, the desired results also emerge. And, as Darwin explains, if such unusual and extraordinary deviations as albinism, spiny skin, supernumerary limbs, etc., which may only occur once in a single individual among millions, can perpetuate themselves, how much more must ordinary variations perpetuate themselves; indeed, as already mentioned and undoubtedly evident from a thousand examples, it must be said that the heritability of such traits is the rule. To explain and understand the internal connection of the entire phenomenon, Virchow certainly hit the mark when he assumed that from the beginning, a specific type of material movement is transmitted from the paternal and maternal organisms to the two germ cells, which continues in these throughout their entire subsequent development in a specific manner and only ceases with the death of the individuals that have arisen from them.

These germinal substances are well known to be egg and seed, and if modern physiology has undoubtedly demonstrated that the material contact and mutual penetration of these two germ substances are indispensable for the creation of a new individual, any unbiased observer easily sees how such a transmission takes place. Because the germ substances (egg and seed) themselves form an integral part of the organisms that produce them, repeating their entire material composition and life movement on a small scale, it can only be that, in their further development, they continually repeat and eventually produce a being that is essentially just a repetition of the progenitors. However, since these progenitors themselves are not absolutely unchangeable beings but modify their own life movement during their lives through influences of various kinds, imprinting a particular character on it, which is immediately reflected in the material composition, it is not surprising that, alongside the innate, original characteristics and peculiarities, those acquired or formed during life also persist. However, this can only happen with the help and through the mediation of germ substances, and in a completely material way, as no other means of transmission exists and cannot be identified in any way. As seemingly small and insignificant as these substances may be in their form and composition, their internal composition and life movement must be exact and infinite. They must be varied among themselves, and their inner nature must be altered and determined by deviations or specific determinations of the organism to which they belong. Thus, as they further develop, bound by their continually predetermined movement, they create a being that is generally and individually similar to the progenitor to roughly the same degree as one leaf of the same plant is to another. Therefore, it can only be the truly physical determinations of shape, size, pattern, etc., which, so to speak, directly propagate as a result of the material characteristics of the germ substances, while the more mental determinations on the germ substances only appear as predispositions, predispositions, abilities and attain their true content only through the influence of the external world acting on the finished being. As Lewes expresses it, it is "a peculiarity of organization, a tendency, a general susceptibility of the nervous system" to certain types of impressions that is inherited, not an essential idea itself. Assuming the heredity of such would mean believing in the existence of innate ideas. Diseases, too, may often be more of a predisposition to such than actual diseases themselves, and whether the inherited predisposition develops or not will often depend solely on the external circumstances of life. This is very clear in cases of inherited diseases that only occur at a specific stage in life, before which their existence is not revealed by anything, and even clearer in those that are inherited from parents to grandchildren or great-grandchildren, or even just to relatives on one side, skipping the intermediate generations. This so-called atavism, where the child often shows a striking resemblance to the grandfather or grandmother, less so to the father or mother, and where peculiarities or diseases often rest for several generations but suddenly reappear in some line*, shows, as does the remarkable phenomenon of the recently observed parthenogenesis in plants and animals (where sexual mixing often suffices for several generations to produce fertile offspring) — how far such a once initiated life movement can go and with what power the laws of heredity can assert themselves and actually do so. Unfortunately, these laws themselves are still almost entirely unknown to us, and it requires much more experience than we currently possess to thoroughly investigate them. Therefore, it should not surprise us that we encounter the inheritance of a number of peculiar and internally unexplained phenomena. Specifically, the question of the extent to which the influences of the respective two progenitors on what is to be produced exert themselves against each other is still quite obscure, and we only know for

certain that these influences sometimes balance each other out, sometimes not. Sometimes the influence of the father predominates, sometimes that of the mother, sometimes it is the properties inherited more from the father or more from the mother; sometimes these properties can unfold unhindered, sometimes there are hindering influences of any kind that obstruct the unfolding. However, in general, it can be said that both parents are represented equally in the offspring, and in most cases, the child represents a fairly even mixture of the two incoming qualities. One can observe this very clearly in the mixing of two different races of people or animals, such as in the crossbreeding of a horse and a donkey, European and African, etc. — where the *) *According to Girou, white animals often produce black-spotted offspring because their parents were spotted (Burdach, loc. cit., p. 507)*. offspring each time forms an intermediate between the characteristics of the two parents and only, depending on circumstances, allows for a predominant influence of one or the other factor. However, the racial characteristics of the two factors should not deviate too far from each other, as otherwise the lack of mutual agreement leads to a deterioration, even extinction, of the subsequent generations, while conversely, excessive agreement and kinship in the characteristics of the two parents result in a similar outcome. Cousin marriages, as known from various and unquestionable observations of modern times, produce defective development, deaf-muteness, infertility, miscarriage, albinism, idiocy, insanity, and the like. It seems, therefore, that the two generating factors must have a certain, well-defined measure of opposition in their descent and characteristics to produce a good result, and this will naturally be better if each factor inherently possesses a stronger and more excellent organization, complementing and completing each other in their good qualities while neutralizing each other in their bad ones. Therefore, the outcome of a marriage among people is by no means, as many might think, a matter of mere chance or capriciousness, but is bound by very specific laws of nature and, to a certain extent, even dependent on the free choice of humans themselves, as it can be predicted, at least to some extent, in advance to what extent a marriage in producing offspring will have a good or less good result. However, although Plato, in his introduction of women's communal sharing in the Republic, demands that only the best be matched with the best, at the best time and in the best years, so that the best man is produced, such physiological considerations are rarely taken into account nowadays when entering into marriage and only exceptions are made with regard to an openly present hereditary predisposition. Indeed, as already mentioned, our experiences in general are still too meager, and the laws of nature at play here are still too little known to be able to make a specific judgment in advance in each individual case, and there is certainly no shortage of examples that seem to contradict rather than follow the rule set forth in practice, or where there is much dissimilarity between parents and child. Certainly, this mistake is not due to the absence or inadequacy of the laws at work, but only to our ignorance of these laws and our unfamiliarity with all the accompanying influences, whether necessary or accidental. In the enumeration of such disturbing influences, among which atavism, already mentioned, plays a role, Lewes also mentions an observation that is truly one of the most remarkable and practically important that we know regarding heredity and inheritance. It is the fact that a mother who has given birth once now imparts some of the peculiarities of the first progenitor to all later offspring conceived with another father. So, a mare that was once covered by a donkey and gave birth to a mule later produces horses when mating with stallions that have something donkey-like about them. Sir Everard Home had a mare of pure English breed that was covered by a quagga stallion (spotted African donkey) in 1816 and gave birth to a hybrid that completely resembled the father. The

same mare was covered by noble stallions in 1817, 1818, and 1823, but all three foals, although the mare had not seen the quagga stallion since 1816, were marked with the remarkable patterns of the quagga. Meckel observed similar results in the crossing of a wild boar with a domestic pig; in the first litter, several of the young ones had the brown bristles of the father, and in every subsequent litter from the sow with ordinary domestic pigs, some of the young ones could be easily distinguished by their resemblance to the wild pig. Orton confirms this fact for dogs, pigs, and chickens. (Lewes.) "If a female dog," says Burdach (loc. cit., p. 507), "For the first time, if a female animal has been fertilized by a male of a different breed, she subsequently gives birth each time to offspring of the foreign breed, even though she has only mated with animals of her own breed. Similarly, in humans, children from a second marriage sometimes resemble the long-deceased first husband more and exhibit psychological traits more similar to him than to their actual father." Likewise, a black woman who has once conceived a child (mulatto) with a white man later, when mating with white men, gives birth to children who become progressively lighter and more similar to the father. However, when mating with black men, she never produces completely black offspring, but rather brown children who always retain some characteristics of the white type. Therefore, if a man wishes to marry a widow who has had a fruitful marriage or a girl who has already given birth, he may inquire about who the first husband or father was, as there is a high probability that his own children will have some traits of the first progenitor, potentially inheriting diseases and the like from him. In any case, this fact, challenging as it may be to interpret or explain, once again demonstrates the powerful influence of heredity and serves as an interesting example of how the life processes occurring in an organism can be modified by external influences, and once a modification has become stable, it can be transmitted to all subsequent descendants.

The overall result of the entire investigation into the relationships of heredity, as expressed by Wait, "lies, for the time being, in the proof that under favorable circumstances, a regular transmission of originally individual peculiarities takes place, and that this transmission can occur equally for many acquired as well as innate characters." At the same time, the facts supporting the transmission of certain acquired physical and mental traits or rather, a predisposing influence of acquired education on the aptitude of offspring, present a psychologically and culturally highly interesting perspective. This perspective sheds light on the gradual transformation and development of a population in both physical and intellectual aspects, receiving a unique motivation. (Continued...)

27. Instinct and Free Will

As long as science has not advanced to comprehend humans as a part and particle of the grand total nature, the natural sciences can only occupy a relatively subordinate position compared to the so-called humanities. It will, apart from its material utility, mainly serve as a pastime for idle minds rather than a serious pursuit for thoughtful heads. For if, as unfortunately still believed by the majority of the educated and even a considerable number of scholars, humans make an exception from nature and fundamentally distinguish themselves through the intellectual aspect of their being, then the latter is somewhat merely the canvas on which the image of the most sublime of creatures or humans is depicted. It can be largely disregarded when considering the image by the observer. Fortunately, such a low view of the relationship between humans and nature finds little support in the facts. As the systematic and principled knowledge of these facts advances, a scientific perspective opposing this one gains more support. From such a perspective arises the mentioned work by Gleis. The passage appears to be a complex and technical discussion on the topics of instinct, purpose in the actions of organisms, and the mechanisms governing physiological responses.

**) Instinct and Free Will or the Mental Life of Animals and Humans. A comparative psychological study by J.P. Gleisberg. Leipzig 1861.*

Here's a direct translation:

"Sprung from the mountain, which treats its challenging material in a somewhat chaotic and overly leaning manner towards foreign research, but still deserves attention due to its direction and several factual proofs presented therein. No word has suffered more misuse and has been more often misinterpreted than the word 'instinct,' through which everything mysterious in the intellectual life of humans and animals, which cannot be attributed to intention and free will, is supposed to be explained outright. However, as with many things that are intended to be explained in this way, it clearly points to deliberation and the use of previously gained experiences. For example, when dogs use the knocker on the door to gain entry, when horses in Staffordshire repeatedly stamp on gorse bushes with their front feet until all the thorns are broken, to avoid injuring their mouths while eating, or when a wasp, wanting to escape from a fly, is hindered by the wind, so it first bites off the fly's wings before being able to fly away unhindered. When swallows wall up sparrows that have entered their nest, and so on. The explanation of instinctive actions from teleological concepts is entirely untenable; 'for if one considers the result of a process as its purpose without further ado, one is always forced to search for a more remote determining cause — here a force supposedly solving all the problems of physics, and so on — which, without being present in the process itself, is still effective. No enlightened physicist now believes in these mystical forces of nature; they are now long discredited as the works of a transcendent-spiritualistic school, and so on. If the so-called reflex activities in the voluntary or involuntary muscular system apparently or actually result in purposeful movements or reactions, the fault lies in the mechanism of the organism itself, not in a 'distrust of nature' against the inventive spirit of the soul, with which Loze speaks of an extreme teleology. Also, in the triggering of certain psychic movements or excitations that are independent of the ideas of a purpose but still purposeful, which have their basis in certain dispositions or anatomical arrangements present in the nerve centers, we again see only a purposeful mechanism at work, whose activity the willing soul does not even have the merit of having stimulated. Ideas also lead involuntarily to movements, for which numerous examples from daily life and history (migrations of peoples, crusades, dance mania, preacher madness, spirit of the time, dream movements, etc.)

can be provided. The innate dream ideas, through which the famous Cuvier believed he had to explain the actions of animals, according to our author, like the innate ideas in general, belong to the products of school philosophers and the mystical assumptions of transcendent idealists, which are foreign to exact natural science. An innate and habitual mechanism conditions a multifaceted movement mechanism, the developmental capacity of which is in direct proportion to the intellectual dignity of the creature and which is set in motion partly by external stimuli and partly by specific mental states or brain conditions. Hence, the comparison between instinctive actions and somnambulistic states by Cuvier is to be completely rejected. Nothing in nature happens for higher, self-aware purposes; instead, everything follows a compelling necessity. Moreover, in nature, we encounter infinitely many purposelessness, 'as it cannot be otherwise when everything that those confined in the concept of purpose consider purposeful is nothing but the result of the influences of external natural conditions and living conditions on emerging and emerged natural beings.' Nor is there a lack of things directly contrary to purpose and disturbing the natural order of things, for which numerous examples can again be given. The often admired healing power of nature consists in the fact that nature has endowed the body with an extraordinary number of fortunate circumstances as a dowry, through which it solves the problem: that external disturbances must break themselves against the reactions they mechanically produce, and so on, for example, vomiting, coughing, diarrhea, and the like. 'Let us assume that these mechanisms often protect the body from harmful influences, but it is also obvious and inherent in the concept of the mechanism that they will only work under very specific conditions, i.e., for the benefit of the individual, but that they can also be set in motion by any mechanical cause that they can achieve, even in the case that under the given circumstances their activity would be purposeless, even harmful. Therefore, defense does not always work for the good of the body, as the best evidence that neither will nor deliberation rests in healing processes.'"

The author further explains, relying on some of the most prominent writers, his firm opposition to the innate ideas of humans, against R. Wagner's soul substance, and against Loze's hypothesis of an abstract soul entity whose quality is expressed as instinctual representation or idea. "Apart from the fact that assuming such forces as innate ideas, the idea of the genus, achieves nothing for our purpose since we do not understand how such forces act on matter, but rather lose sight of it, imagining to comprehend the processes, we can by no means see in the moral ideas assumed by L. the inalienable content of our soul. As the germ of the subsequently unfolding soul substance communicated to us originally by the subjective nature, it determines all our actions in advance and directs them towards a certain goal with driving necessity. How would one then explain the existence of many millions of uncultivated people, partly of past, partly of still living generations?" The author also cannot agree with Loze's view that animal and human souls are of completely different quality, etc. Overall, the assumption of a soul substance or a mental primal quality, originating entirely differently from the body and only using it to reveal itself to the real world, is not very convincing and is refuted with Virchow's words.

This leads the author to a separate section dealing with the "Nature of the Soul," in which it is explained that the actual activities of the soul cannot be separated from nerve activities. The soul has its seat only in the brain, with the large brain having legislative power and the small one having executive power. Physiologically, it is impossible to separate the psychic principle

from the life principle; a vital activity, reproduction, perpetuates the mental principle and multiplies it, and sensory perceptions, which no one separates from the soul, are just as unmistakable acts of the sense organs as muscle movements are life functions of the muscles. The resistance to the acknowledgment of these truths partly lies in the fact that most educated individuals are idealists and adhere to the same doctrine presented mythically in Plato's Timaeus, according to which the soul should return as an emanation of the divine to where it came from during the creation of sentient beings. "The interest of one's own ego in its personal existence lends strength and confidence to this belief, claiming the continuation of its person even beyond the grave."

The most thorough evidence for a correct assessment of the relationship between brain and soul is provided by comparative anatomy, whose results the author essentially lists one after another, experiences with cretinism and idiocy in humans, the comparison of human races and their skull proportions among each other, experiences in pathology in humans and animals, etc. — Regarding the cranioscopic systems of Gall and Carus, the author notes, apart from enumerating conflicting facts, that it is entirely mistaken to localize the individual mental faculties in the way they are described. These faculties do not act separately from each other in the flow of psychological events; instead, the mental faculties in this abstraction only appear in our artificial systems but not in reality. After this section briefly addresses divergent views of various writers on the relationship between the brain and soul, some of which lean towards materialism, others towards more spiritual nature, and some having elements of both, and particularly thoroughly rejects the Loze's soul substance, it concludes as follows: "Thus, in the brain lies the temple of the Highest, which interests us. All our physical and mental pleasures have their spatial foundation in the brain, and all our deeds, both noble and base, as well as everything great and noble, as well as everything small and vile, drive, to speak with Herder, Treviranus, and Reil, their first roots here. Indeed, the fate of the entire human race is closely linked to 65—70 cubic inches of brain mass, and the history of humanity is inscribed in it like a large book full of hieroglyphic symbols. From every fold of the enormous garment in which our planet is wrapped, the finger of this organ shines forth, the last and highest fruit, the crown, from the thousand-year upheavals of its development. What receives its existence here grasps the reins of nature itself, interweaves arbitrariness into necessity, and forces it to incorporate the creations of human imagination as new series into the tableau of its own development. Here arose the idea of the Belvedere Apollo. Without this marble-white vault that spans its arches high above the sources of sensual life, Homer's Iliad, Keppler's Zoonomy of the Stars would not exist. What oscillates in these meandering halls passes with lightning speed from one to all, plunges the soul into the All and the All into the soul. Thus, the colossi among humans arise, who take hold of the helm of states or, like Alexander, stand alone against an entire continent."

In a third section that delves deeper into the "animal soul," it is again emphasized that there is no instinct in the sense of the ancients, and that this word among naturalists always meant the unknown X, which they seemingly placed in the question about the causes of seemingly mysterious mental activities of animals. Animal and human souls, which are only gradually different, are not only the product of external conditions but also of certain inner material qualities. Here, one must first think of a special organization of the nervous system, and the typical development of the body is transferred to that of the mind. In the artistic instincts of animals, we must see a sum of purely mechanical arrangements deeply rooted in the

organization, with the premises located in this organization for the emergence of ideas that involuntarily control the subject's actions being much more compelling in animals than in humans. Admittedly, much may still be unclear here, but it can be asserted with certainty that the process by which animals reach the prototypes of their works of art is no more unclear than the emergence of the basic forms of knowledge in humans. But just like humans, animals deliberate, think, feel, gather experiences, care for the future and family, judge, infer, compare, form concepts, and feel love, hate, gratitude, etc., as proven by the most striking facts and examples; and it is not without reason that actions which are attributed to humans as the highest moral merit (e.g., sacrificial love for a child) are considered consequences of an innate blind natural instinct in animals. "The uniformity of so-called instinctual actions and artistic impulses in insects is explained by the same life conditions, as well as the same needs from which these actions arise. If we alter the conditions under which instinctual actions are normally performed, they undergo modification; if we render them unnecessary through any arrangement, they cease as well." The feigning of death by beetles is as deducible from experience and reflection as the deception of a fox lying on a chain, pretending to sleep to catch one of the unsuspecting nearby chickens. Language and reason do not establish any difference between humans and animals. Animals undeniably possess the former, and regarding the latter, the author notes: "The difference between human and animal souls has mostly been dismissed by simply asserting that animals have intelligence but not reason, as reason is an exclusive property of humans. A Hegelian would say: Man is the self-aware ethical idea, animals are different self-aware natural ideas. If we ask ourselves what reason means, that metaphysical personality of philosophers, it is crucial to emphasize that reason is not a mental activity sui generis but rather an intensified understanding. Essentially, it is the relationship of our individual self to the world of ideas, to a higher order of the world, the ability to form concepts, abstract, and the capacity to determine actions according to specific inherited or self-recognized norms. Certainly, we will search in vain for such a heightened level of intellectual activities in animals. However, I must firmly object to the assertion that reason is a universal possession of humans. Anyone who has frequently interacted with uneducated people will all too often, much like with animals, in vain seek that so-called 'divine spark,' that 'metaphysical personality,' that 'self-withdrawn ego' etc. Hence, modern humanism rightfully demands, for the administration of justice, that degrees of accountability be allowed depending on the educational level of the accused!

In the final section on "Will," the external and internal influences that partially limit, entirely abolish, or guide the will of humans and animals in specific directions are discussed. The author does not hesitate to provide numerous instructive examples. "The mental character of the originally wild dog," he says among other things, "has changed through constant interaction with humans to the extent that we often witness actions that decidedly have moral value (such as loyalty, attachment, gratitude). And what has, I must ask, become of the fiery and intelligent horses of the Orient, whose physical and mental merits enthralled poets of ancient times, in the swampy lowlands of the North Sea? A creature both mentally and physically clumsy, with an innate tendency toward idiocy. Despite all conditions that permanently or temporarily abolish the freedom of the will and limit accountability, the existence of a morally self-determining soul in cultured humans cannot be denied. And those conditions can only be those in which, for the individual in question, the possibility was suspended either to act arbitrarily at all or to determine arbitrariness according to moral laws. Such conditions include, among others, youth, minority, ignorance, intellectual weakness,

mental disorder, emotion, intoxication, sleep, sensory illusion, suffering, danger, and so on and so forth." All conditions that have not yet received sufficient attention in legal proceedings. "For only he can truly be punishable and responsible in whose undiminished power and authority, at the moment of the act, it lay to either restrain or permit it." Indeed, while the actual principle of legal proceedings may not be fundamentally affected, a considerable revolution in the future may be anticipated from a truly natural conception of punishment and accountability. The processes of the present time might, in the eyes of our descendants, possess not a few characteristics of what, in our view, distinguishes criminal proceedings of a long-gone past!